Service Quick Reference Guide

Tektronix

Phaser® 340 and Phaser® 350 Color Printer

Warning
The following servicing instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing other than that contained in operating instructions unless you are qualified to do so.

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Users safety summary

Terms in manual:

CAUTION Conditions that can result in damage to the produc

WARNING Conditions that can result in personal injury or loss of life.

Power source: Do not apply more than 250 volts RMS between the supply conductors or between either supply conductor and ground. Use only the specified power cord and connector. Refer to a qualified service technician for changes to the cord or connector.

Operation of product: Avoid electric shock by contacting a qualified service technician to replace fuses inside the product. Do not operate without the cove and panels properly installed. Do not operate in an atmosphere of explosive gases.

WARNING Turning the power off using the On / Off switch dc not de-energize the printer. You must remove the power cord tc disconnect the printer from the mains. Keep the power cord accessible for removal in case of an emergency.

Safety instructions: Read all installation instructions carefully before you plug t product into a power source.

Terms on product:

CAUTION A personal injury hazard exists that may not be apparent. For example, a panel may cover the hazardous area. Also applies to a hazard to property including the product itself.

DANGER A personal injury hazard exists in the area where you see the sign.

Care of product: Disconnect the power plug by pulling the plug, not the cord. Disconnect the power plug if the power cord or plug is frayed or otherwise damaged, if you spill anything into the case, if product is exposed to any exces moisture, if product is dropped or damaged, if you suspect that the product nee servicing or repair, and whenever you clean the product.

Ground the product: Plug the three-wire power cord (with grounding prong) int grounded AC outlets only. If necessary, contact a licensed electrician to install a properly grounded outlet.

ymbols as marked on product:

ANGER high voltage:

otective ground (earth) terminal:

se caution. Refer to the manual(s) for information:

ARNING: If the product loses the ground connection, usage of knobs and ntrols (and other conductive parts) can cause an electrical shock. Electrical oduct may be hazardous if misused.

ervice safety summary

r qualified service personnel only: Refer also to the preceding Users Safety mmary.

o not service alone: Do not perform internal service or adjustment of this oduct unless another person capable of rendering first aid or resuscitation is esent.

se care when servicing with power on: Dangerous voltages may exist at several oints in this product. To avoid personal injury, do not touch exposed nnections and components while power is on.

isconnect power before removing the power supply shield, soldering, or placing components.

o not wear jewelry: Remove jewelry prior to servicing. Rings, necklaces, and her metallic objects could come into contact with dangerous voltages and rrents.

ower source: This product is intended to operate from a power source that will ot apply more than 250 volts rms between the supply conductors or between ther supply conductor and ground. A protective ground connection by way of e grounding conductor in the power cord is essential for safe operation.

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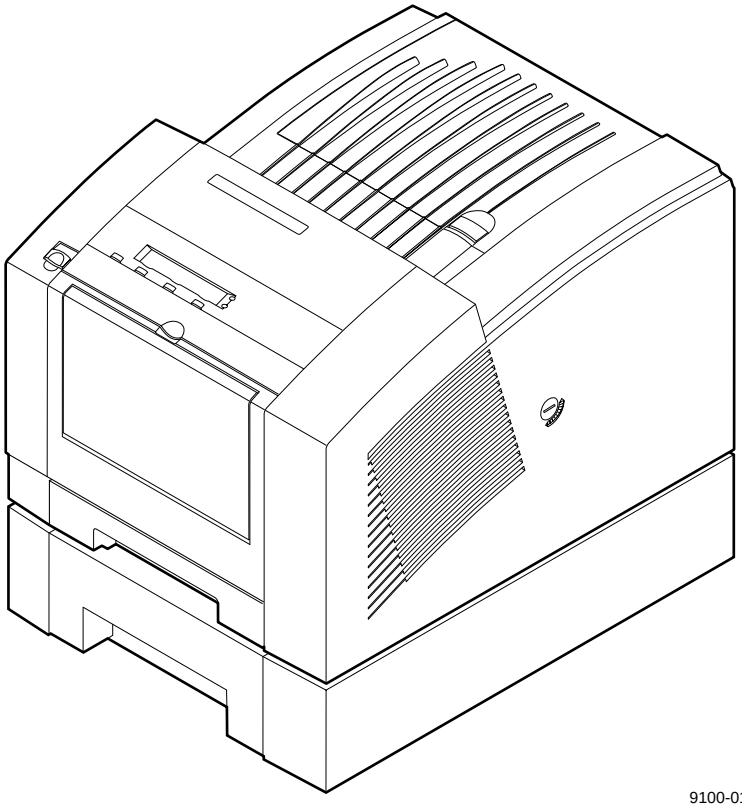
General Information

This quick reference guide contains information useful to verify operation, troubleshoot, repair, adjust, and maintain a Tektronix Phaser® 340 and Phaser® 350 Color Printers. It includes troubleshooting guides, error code lists, and an FRU list.

To ensure complete understanding of the product, we recommend participation in Phaser 340 and Phaser 350 Color Printer service training, if available.



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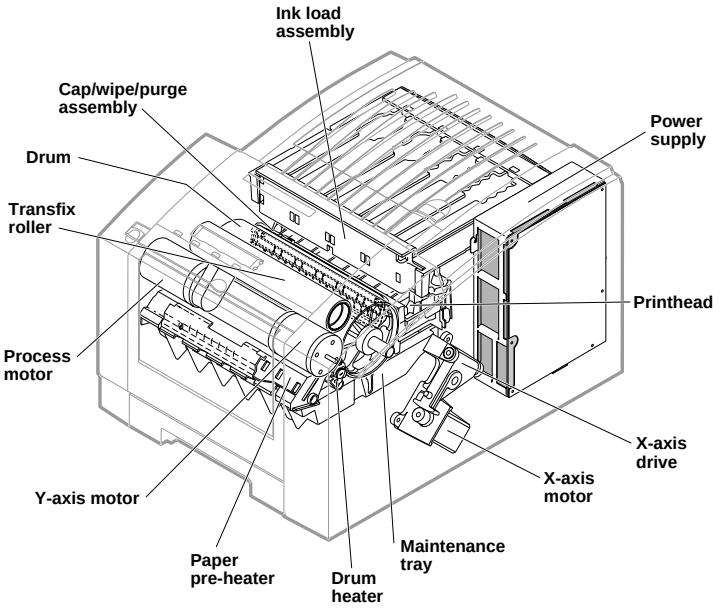
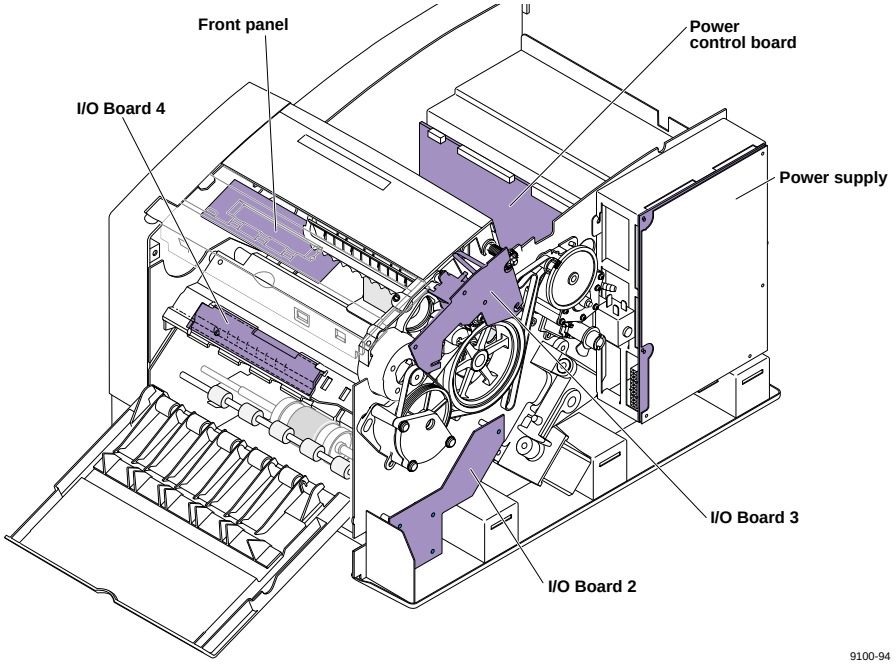
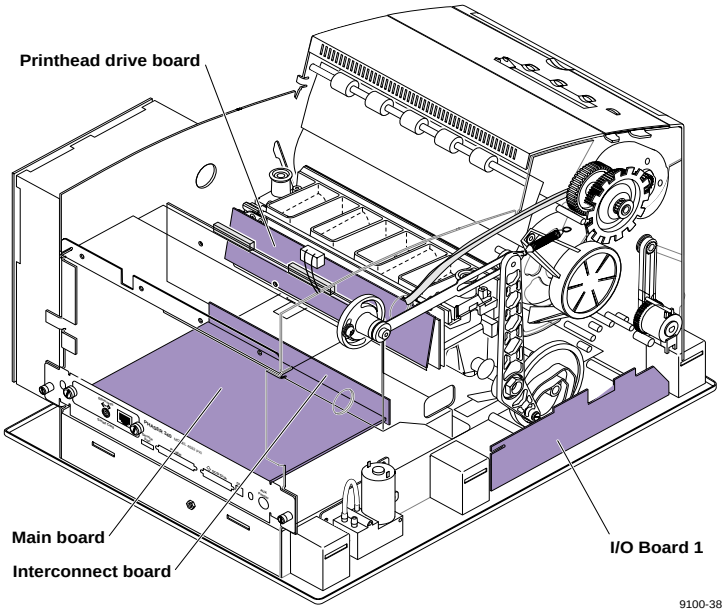
The Phaser 350 printer (shown with optional Lower Paper Tray Assembly)

Print engine assemblies

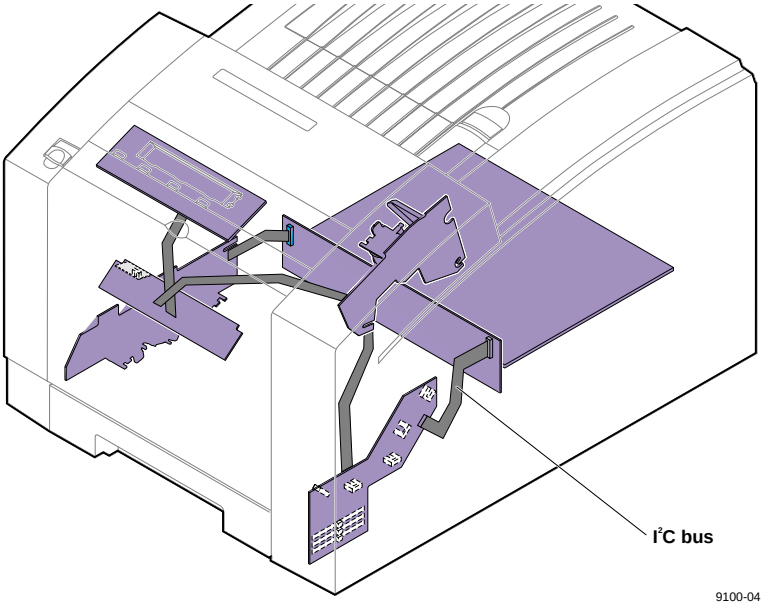


Internal features of the print engine

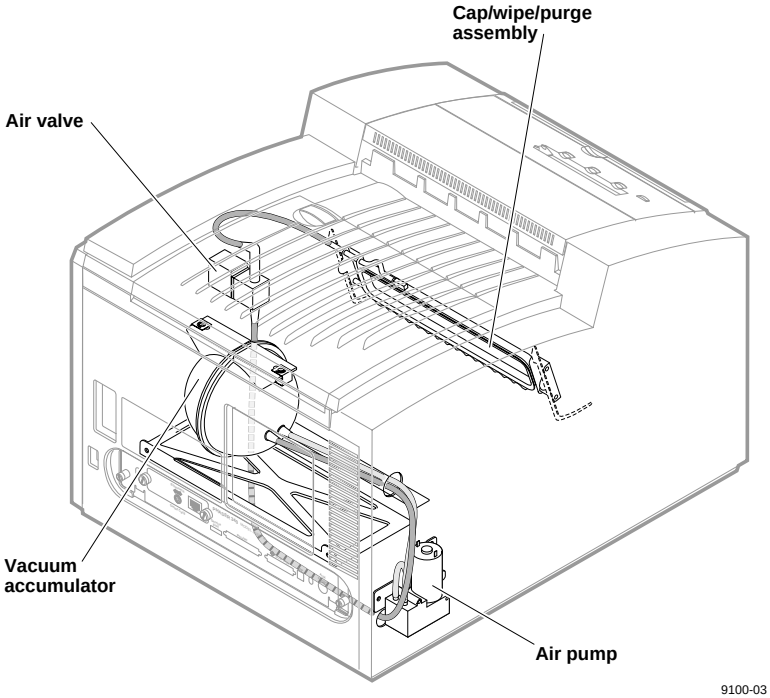




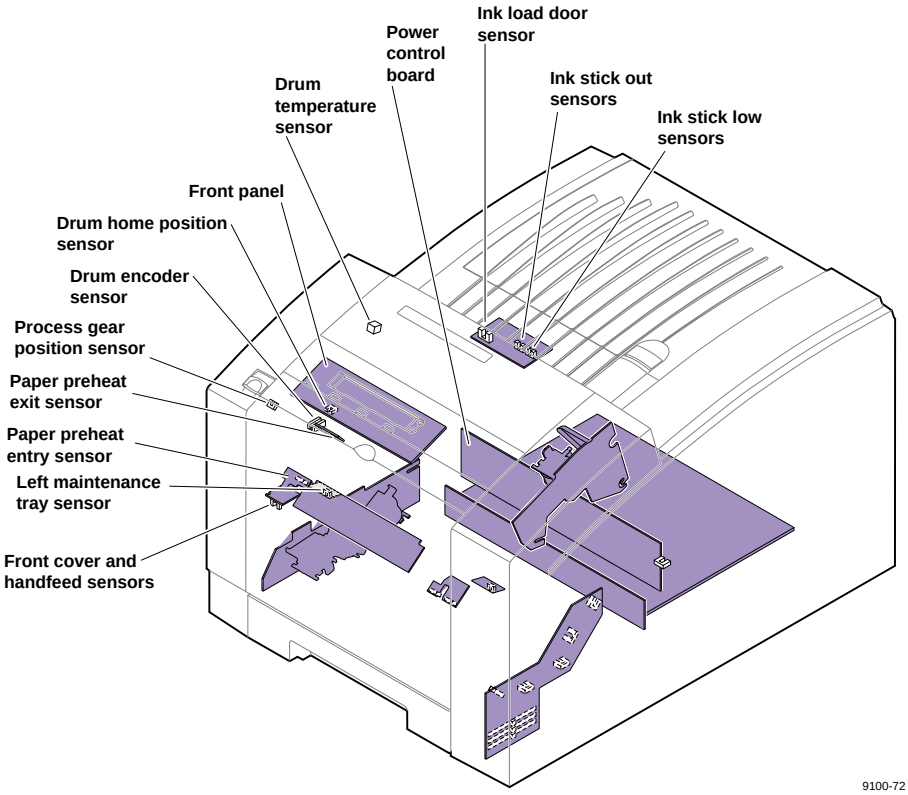
Circuit boards of the print engine



The printer's I²C bus

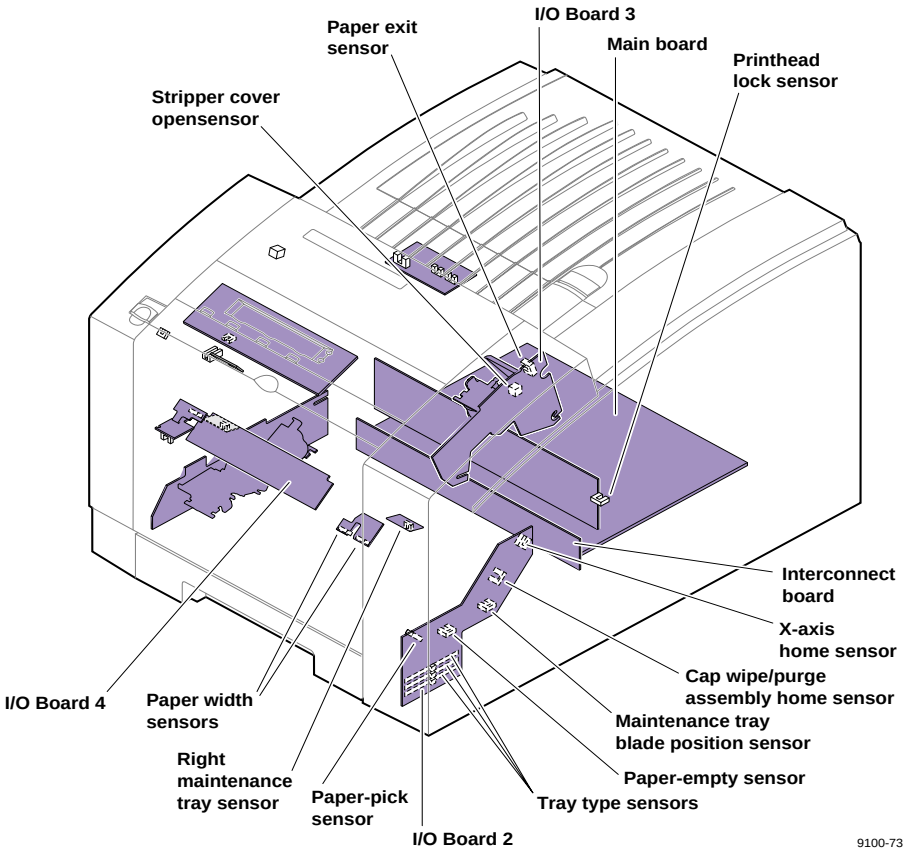


Printhead maintenance system of the print engine

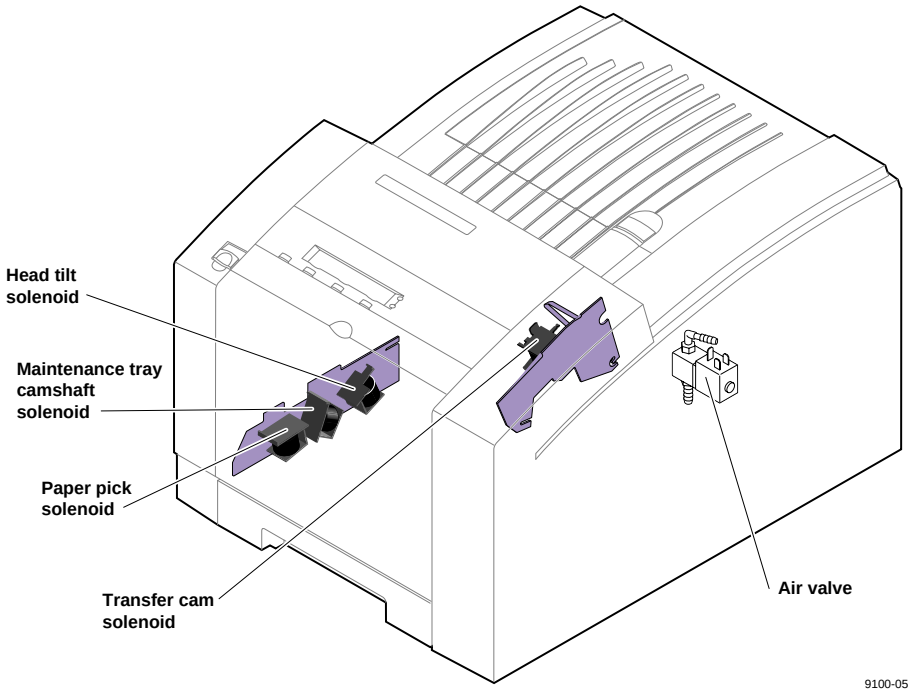


Left-side sensors and switches on the print engine

Caution *The actual position of some printer assemblies, such as the printhead or the cap/wipe/purge assembly, cannot be ascertained at all times. The printer records, in NVRAM, where it last positioned such assemblies each time it moves them. If, after power-down or a power interruption, the assemblies are manually repositioned, the printer erroneously assumes that the assemblies to be in the position it last left them. This assumption can result in damage to the printer when it tries to position the assemblies. For example, the printhead could be tilted forward and crash into the raised cap/wipe/purge assembly.*

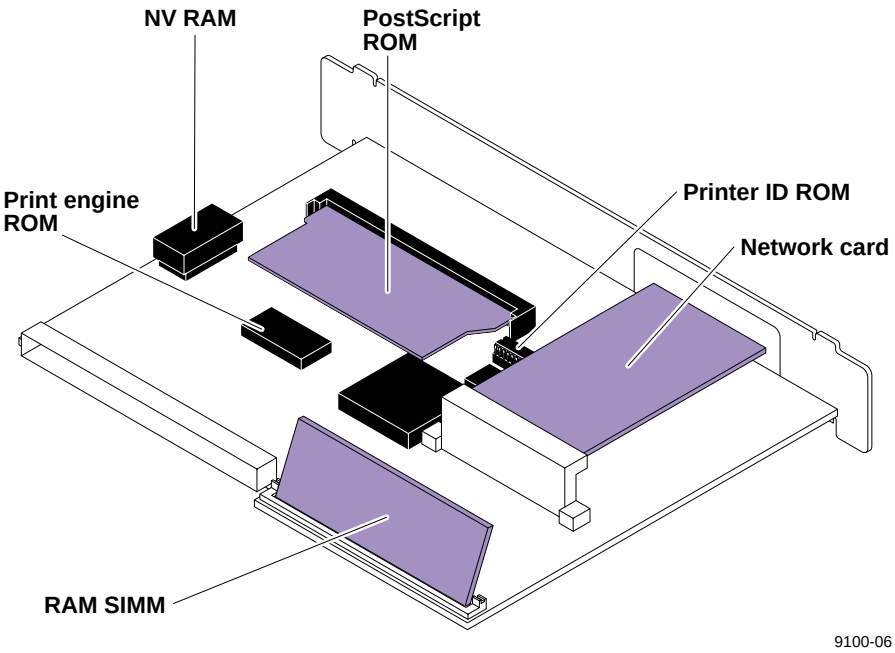


Right-side sensors and switches on the print engine



Solenoids on the print engine

The main board



Features of the main board

Media tray type sensing

- **Letter (A-size).** This tray is sized for 8.5 x 11-inch (Olympic) paper.
- **Metric Letter (A4-size).** This tray is used for 210 x 297 mm (Metric) paper.
- **Transparency (A).** This tray supports Olympic-size transparency film.
- **Transparency (A4).** This tray supports Metric-size transparency film.

Table 1 Tray switch sensor combinations

Tray type	A Paper	A4 Paper	A Transparency	A4 Transparency
Top switch	Closed	Open	Closed	Open
Middle switch	Open	Closed	Open	Closed
Bottom switch	Open	Open	Closed	Closed

Bypass mode

Phaser 350 printers and Phaser 340 printers serial-numbered BCxxxxx and up feature Bypass mode. Bypass mode allows you to access the front panel menus (bypassing the engine and PostScript initializing processes) without having to wait for the printhead to warm up. This way, you can reset NVRAM or read fault codes immediately. Meanwhile, the printer continues to warm-up and initialize "in the background."

Phaser 340

1. Press and hold front panel buttons 1 and 2. Turn on the printer.
2. Wait for the message `Entering Bypass Mode` to be displayed.
3. Release buttons 1 and 2.

Phaser 350

1. Turn on the printer.
2. Wait for the printer fron panel to display "`Initializing ...`"
3. Press and hold front panel buttons 1 and 2.
4. Wait for the message `Entering Bypass Mode` to be displayed.
5. Release buttons 1 and 2.

Cool down mode

Phaser 350 printers and Phaser 340 printers serial-numbered BCxxxxx and up have a menu item that accelerates the cooling down of the printhead.

1. Enter the extended menu by pressing **Menu** and **Exit**.
2. Scroll to the **Service Suppor**t menu item and press **Menu.**
3. Scroll to the item **Cool-down for Power Off** and press **OK**.

The printer turn off all the engine heaters and runs the fans on high until the ink in the printhead has solidified. Then the printers informs you the printer can be turned off.

Printing service test prints

1. Turn on the printer.
2. Allow the printer to complete its power-up self-tests. The front panel displays:
   ```
   Ready
         Clean    Menu
   ```
3. Pressing the **Menu** and **Exit** buttons together to access the extended menu. At this level you can access all the main menu items.
4. Scroll to the main menu item **Service Support** and then press the **Menu** and **Exit** buttons together.
5. Scroll to the menu item **Test Prints** and press the **Menu** button to access it list of test prints.
6. Scroll to the desired test print and press the **Print** button.

Accessing the printer's fault history

1. Enter the extended menu by pressing **Menu** and **Exit**.
2. Scroll to the **Service Suppor**t menu item and press **Menu.**
3. Scroll to the item **Fault history** and press **OK**.

Fault code 1 is the oldest error code of the fives stored in the printer's NVRAM; Fault code 5 is the most recent error code.

Serial numbering for Phaser 350

The serial number has the format of B*YRxxxx* where:

- B = Beaverton
- Y = Year (0-9)
- R = Revision level (A thru Z, minus "I" and "O")
- xxxx = numerical values only (0-9)

This is the begining serial number for the Phaser 350:

- B6A0100

Phaser 340 serial number format changes

New printers have a “B6” serial number. For reasons related to export codes and “country-of-origin”, the serial number format on Phaser 340 Color Printers has changed. Manufacturing discovered that the use of the double-alpha prefixes “BB,” “BC,” “BD,” and BE,” was in violation of a previous agreement with the U. S. government.

Refer to the first three digits instead of only two. New printers ship with “B6E” instead of “BE” as the serial number prefix. The entire serial number has a simpler format of B*YRxxxx* where:

- B = Beaverton
- Y = Year (0-9)
- L = Revision level (range 0 thru 9 and A thru Z; base 34)
- xxxx = numerical values only (0-9)

This format supports only 10,000 printers, but the revision level can be rolled for the next 10,000 printers. There is no duplication of “B6” numbers on the Phaser 340 because of the range of previous B6 numbers that were issued.

Serial number history for the Phaser 340

Following are previous Phaser 340 serial patterns showing the first 3 digits:

- B15 First production output, serial number format B*LYMDzz*.
- B25 V1.2 print engine firmware.
- B35 V1.8 print engine firmware.
- B4*zz* Serial number format change, serial number format B*LzzDMY*.
- B5*zz* V1.22 print engine firmware.
- B6*zz* V1.24 print engine firmware, field update is 650-3163-02.
- B7*zz* Power supply 650-3365-01 or 650-3397-00 thermistor kit.
- B8*zz* Redesigned cap / wipe / purge assembly 650-3258-01.
- B9*zz* 2-flag ink loader.
- BC*zz* Expanded features, Web support and NDS support on Netware.
- BD*zz* De-skew hardware installed (only 14 printers shipped).
- BE*zz* Same as BCzz (de-skew removed, was too noisy during paper pick).
- B6E Serial number format change; serial number format BY*Lxxxx*.
- B6F (Pending) New main board, 671-3760-80 is exchange part number.

Error Codes and Messages

Rear panel LED error codes

The left LED represents the operation of the 29K processor. During normal power-up, the LED flashes twice and then stays lighted. If the LED repeatedly flashes in the same sequence then the 29K processor has encountered an error and is looping. The possible LED-encoded error codes are listed here:

Table 2 29K processor power up self-test error codes

Left LED flashes	Meaning
1	CPU interrupt
2	ROM checksum
3	DRAM data path
4	DRAM address path
5	Interprocessor communication (IPC)

After successful power-up, the left LED flashes at a regular “heartbeat” rate. The front panel Power light is turned on, the Error light is flashed, and the LCD is cleared.

The right LED represents tests on the main board's print engine 68K processor. During power-up the LED flashes twice and then stays lighted. It then blinks intermittently as the processor test run. Like the 29K LED, if it blinks in a regular, repeated pattern, the processor is looping on a failed test. After successful power-up, the left LED blinks in a regular 2 beat-pause-2 beat-pause pattern. If the LED repeatedly flashes in the same sequence then the 29K processor has encountered an error and is looping. The possible LED-encoded error codes are listed here:

Table 3 68K processor power up self-test error codes

Right LED flashes Long flash =5 Short flash=1 3L+1S=16	**Meaning**
1	CPU Interrupt
2	Instruction ROM: Data Bus
3	Instruction ROM: Checksum
4	SRAM: Validate data paths
5	SRAM: Byte-wide device-independent test
6	SRAM: Memory cell test
7	SRAM: Validate address paths
8	PE NVRAM: Validate data paths
9	PE NVRAM: Memory cell test
10	PE NVRAM: Validate data paths
11	MC ASIC: Read registers only
12	MC ASIC: Validate data paths
13	MC ASIC: Write/read registers
14	MC ASIC: FIFO validation
15	DMC ASIC: Validate data paths
16	DMC ASIC: Write/read registers
17	DMC ASIC: ROM validation
18	DMC ASIC: Validate RAM blocks
19	DMC ASIC: Timer registers and IRQ
20	DMC ASIC: IRQ validation using test mode
21	DMC ASIC: ADC conversion
22	IPC validation (joint test with 29K processor

Front pane -disp ayed error codes and messages

Error codes indicate the following:

- Failing system (**XX**,yyy.zz)
- Failing subsystem (xx,**YYY**.zz)
- Actual problem (xx,yyy.**ZZ**).
- Print engine copy count (xx,yyy.zz**:123**) the error occurred on.

Codes from 24,000 through 24,999 are engine failures reported by the PostScript controller. They are not stored in the fault history table of the NVRAM. They are reported when the engine has been stuck in a state for 25 minutes.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
4,000: PC (process control supervisor)....	
4,001.40 (0x2401): PC_DEV_FAULT_ HEAD_READ	Failure reading printhead NVRAM data: check the wiring to the printhead, I^2C bus and other hardware.
4,002.41 (0x2402): PC_DEV_FAULT_ HEAD_ZEROS	Printhead NVRAM data was all zeros: has this printhead been through normalization? If so, check wiring to printhead.
4,003.42 (0x2403): PC_DEV_FAULT_ HEAD_ONES	Printhead NVRAM data was all ones: has this printhead been through normalization? If so, check the wiring to the printhead.
4,004.43 (0x2404): PC_DEV_FAULT_ HEAD_CHECKSU M	Printhead NVRAM checksum failure: the data within the printhead NVRAM has been corrupted. Check the hardware. Check the the printhead ribbon cable and associated connections.
4,005.44 (0x2405): PC_DEV_FAULT_ DM_ CAM_ERR	Failure positioning drum maintenance cam during a drum maintenance cycle: check drum maintenance cam solenoid, clutch, home sensor, and related hardware.
4,006.45 (0x2406): PC_DEV_FAULT_ 300DPI_CAL	Calibration failure: Target Volt-Sec Area of 300 dpi could not be achieved. Check the hardware. The printhead may need to be renormalized.
4,007.46 (0x2407): PC_DEV_FAULT_ 600DPI_CAL:	Calibration Failure: Target Volt-Sec Area of 600 dpi could not be achieved. Check the hardware. The printhead may need to be renormalized.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
4,008.47 (0x2408) PC_DEV_FAULT_ STUCK_DMC:	Failure to advance the drum maintenance tray sensor interrupt flag. It has been in the new tray state for too long. Check the hardware.
4,009.48 (0x2409) PC_DEV_FAULT_ DM_ CAM_BEGIN	At the start of a drum maintenance cycle, when the drum maintenance cam position should have been at blade down, wick down, the drum maintenance cam home sensor should have been TRUE and was instead FALSE. Check the drum maintenance cam solenoid, clutch, home sensor, and related hardware.
4,010.40 (0x240A) PC_DEV_FAULT_ DM_CAM_BU_ WU	During the drum maintenance cycle, when the drum maintenance cam position should have been at blade up/wick up, the drum maintenance cam home sensor should have been FALSE and was instead TRUE. Check the drum maintenance cam solenoid, clutch, home sensor, and related hardware.
4,011.41 (0x240B) PC_DEV_FAULT_ DM_CAM_BU_ WD	During the drum maintenance cycle, when the drum maintenance cam position should have been at blade up/wick down, the drum maintenance cam home sensor should have been FALSE and was instead TRUE. Check the drum maintenance cam solenoid, clutch, home sensor, and related hardware.
4,012.42 (0x240C) PC_DEV_FAULT_ DM_CAM_END	At the end of a drum maintenance cycle, when the drum maintenance cam position should have been at blade down/wick down, the drum maintenance cam home sensor should have been TRUE and was instead FALSE. Check the drum maintenance cam solenoid, clutch, home sensor, and related hardware.
4,013.43 (0x240D) PC_DEV_FAULT_ GEAR_GRIND	During power-on initialization, the engine is unable to disengage the process motor. Prior to declaring this fault, the engine has attempted to move the process motor through enough revolutions to disengage the head tilt mechanism, but the motor stalled. The X axis was then displaced to the right 0.15 inches and the disengage was repeated, but the motor stalled again. This fault is then declared. The head is unable to move on its tilt axis, perhaps because it is colliding with something (head restraint pin, cap, poorly installed ink loader, screwdriver.)
4,015.45 (0x240F) PC_DEV_FAULT_ HEAD_ADJUST_ TIMEOUT	The engine spent too much time in printhead adjust state. The engine declares a device fault and shuts down, rather than leave a hot heater against a cold drum for an indefinite period
4,016.46 (0x2410) PC_DEV_FAULT_ HEAD_NV_ FORMAT	The printhead format number, stored in printhead NVRAM, is not understood by this version of engine firmware.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
4,017.47 (0x2411) PC_DEV_FAULT_ AMBIENT_ TOO_COLD	Ambient temperature has fallen to less than 10^{o} C. Something may be wrong with a heater.
4,018.48 (0x2412) PC_DEV_FAULT_ LATE_CLEAN_RE QUEST	After the printer determined, at power up, that the printhead was warm enough not to need cleaning, and while the printer was warming up the printhead temperature dropped below the head-clean-needed threshold. Something may be wrong with a heater.
4,019.40 (0x2413) PC_DEV_FAULT_ FASTDPI_CAL	Calibration Failure: Target Volt-Sec Area of Fast Color mode could not be achieved. Check the hardware. The head may need to be renormalized.
5,000: Y axis (drum)	
5,001.41 (0x2c01): YA_HOME_FAIL	Drum home sensor failure: the drum turned one full revolution without seeing the drum home sensor activate. Check the drum home sensor.
5,002.41 (0x2b02): YA_STALL_FAIL	The Y-axis (drum) motor stalled, possibly because the drum position sensor electronics have failed, or because the motor drive or drive belts have failed, or because something is physically blocking the motion of the drum.
5,002.42 (0x2b03): YA_POS_FAIL	Y-axis position failure, the drum is not where is should be, possibly because the drum position sensor electronics have failed, or because the motor drive or drive belts have failed, or because something is physically blocking the motion of the drum
5,002.41 (0x2b02): YA_STALL_FAIL	The drum stalled: the drum stalled because the motor drive or drive belts have failed, or because something is physically blocking the motion of the drum.
5,003.42 (0x2b03): YA_POS_FAIL	Y axis position failure: the drum is not where it should be. Besides the possible mechanical problems, this can be caused by software latency errors, if too many interrupts occur during drum positioning.
6,000: X axis	
6,000.41 (0x3400): XA_FAULT_ MCURRENT	X axis motor over/under current. Indicates that motor coil(s) are open, or shorted, or the x-axis motor fuse has opened.
6,001.42 (0x3401): XA_FAULT_ NOHOME	X-axis home position not found. Indicates that the x-axis home sensor has failed, or something has prevented the printhead motion during a home operation.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
6,002.43 (0x3402): XA_FAULT_ NGHOME	Unexpected x-axis home sensor activation. The sensor has failed, the motor control is moving the printhead in the wrong direction, or the user has engaged the printhead restraint mechanism.
6,003.44 (0x3403): XA_FAULT_LOST	A verify of the home calibration failed. After locating the home sensor transition, the DMC computed x-axis position varied from the home value by more than the acceptable tolerance.
7,000: Process motor	
7,001.43 (0x3c01): PM_FAULT_AUXI LIARY_ MOTOR_ERROR	The electronics report an error while operating the motor in the auxiliary feeder (the optional lower tray)
7,002.44 (0x3c02): PM_FAULT_PRO CESS_MOTOR_ STALL	The process motor stalled during operation. This has several possible causes, depending on what the process motor was gear-connected to at the time of failure.
7,003.45 (0x3c03): PM_FAULT_ COMPOUND_ GEAR_SENSOR_ BAD	No transitions are observed of the compound gear sensor when the compound gear should be turning. Perhaps the sensor is bad, or the process motor to compound gear linkage is broken.
7,004.46 (0x3c04): PM_FAULT_DM_ CAM_ SENSOR_BAD	No transitions are observed of the drum maintenance cam sensor. The sensor may be bad or the drum maintenance cam may be jammed.
7,005.47: PM_FAULT_PRE HEAT_EXIT_ SENSOR_BAD ().	The preheater exit sensor is not being detected, it is either unplugged or defective.
8,000: Cap drive and web sensors	
8,001.44 (0x4401): CAP_FAULT_HO ME_SENSOR	An expected transition of the cap home sensor did not occur. The home sensor may be faulty, or the cap motor may not be operating, or the cap may be jammed and unable to move.
8,002.45 (0x4402): CAP_FAULT_ WEB_SENSORS	A fault is detected in the web sensors. Check the left and right maintenance tray sensors and their wiring harness.
8,003.46 (0x4403): CAP_FAULT_ OVERCURRENT	The cap/wipe/purge assembly stalled. (This fault does not actually occur because the mechanism is loose. When the assembly jams, the motor skips over teeth.)

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
9,000: Ink loader: ink melters and printhead ink level sensors.	
9,001.45 (0x4c01): IL_FAULT_C_ TWANGER	Malfunction of the ink level sensor in the cyan reservoir. Replace the printhead.
9,002.46 (0x4c02): IL_FAULT_M_ TWANGER	Malfunction of the ink level sensor in the magenta reservoir. Replace the printhead.
9,003.47 (0x4c03): IL_FAULT_Y_ TWANGER	Malfunction of the ink level sensor in the yellow reservoir. Replace the printhead.
9,004.48 (0x4c04): IL_FAULT_K_ TWANGER	Malfunction of the ink level sensor in the black reservoir. Replace the printhead.
9,005.40 (0x4c05): IL_FAULT_C_JAM	The cyan ink melt heater is on, but ink does not seem to be dripping. Check that the ink stick is able to advance in the chute.
9,006.41 (0x4c06): IL_FAULT_M_JAM	The magenta ink melt heater is on, but ink does not seem to be dripping. Check that the ink stick is able to advance in the chute.
9,007.42 (0x4c07): IL_FAULT_Y_JAM	The yellow ink melt heater is on, but ink does not seem to be dripping. Check that the ink stick is able to advance in the chute.
9,008.43 (0x4c08): IL_FAULT_K_JAM	The black ink melt heater is on, but ink does not seem to be dripping. Check that the ink stick is able to advance in the chute.
13,000:printhead thermals	
13,001.40 (0x6c01): TCH_JS_LEFT_ OPEN	The thermistor in the left jetstack appears to be open. Replace the printhead.
13,002.41 (0x6c02): TCH_JS_LEFT_ SHORT	The thermistor in the left jetstack appears to be shorted. Replace the printhead.
13,003.42 (0x6c03): TCH_JS_LEFT_ HOT	The left jetstack heater is running away. Unplug the printer NOW!
13,004.43 (0x6c04): TCH_JS_LEFT_ SLOW	The left jetstack heater is not heating at all, or is not heating as quickly as it should. Replace the printhead.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
13,017.47 (0x6c11): TCH_JS_RIGHT_OPEN	The thermistor in the right jetstack appears to be open. Replace the printhead ribbon cable. Check connections. Peplace the printhead.
13,018.48 (0x6c12): TCH_JS_RIGHT_SHORT	The thermistor in the right jetstack appears to be shorted. Replace the printhead.
13,019.40 (0x6c13): TCH_JS_RIGHT_HOT	The right jetstack heater is running away. Unplug the printer NOW!
13,020.41 (0x6c14): TCH_JS_RIGHT_SLOW	The right jetstack heater is not heating at all, or is not heating as quickly as it should. Replace the printhead ribbon cable. Check connections. Peplace the printhead.
13,033.45 (0x6c21): TCH_RESERVOIR_OPEN	The thermistor in the reservoir appears to be open. Replace the printhead ribbon cable. Check connections. Peplace the printhead.
13,034.46 (0x6c22): TCH_RESERVOIR_SHORT	The thermistor in the reservoir appears to be shorted. Replace the printhead ribbon cable. Check connections. Peplace the printhead.
13,035.47 (0x6c23): TCH_RESERVOIR_HOT	The reservoir heater is running away. Unplug the printer NOW!
13,036.48 (0x6c24): TCH_RESERVOIR_SLOW	The reservoir heater is not heating at all, or is not heating as quickly as it should. Replace the printhead ribbon cable. Check connections. Peplace the printhead.
14,000: Cap thermals	
14,001.41 (0x7401): TCC_THERMISTOR_OPEN	The cap/wipe/purge assembly thermistor appears to be open. Replace the assembly.
14,002.42 (0x7402): TCC_THERMISTOR_SHORT	The cap/wipe/purge assembly thermistor appears to be shorted. Replace the assembly.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
14,003.43 (0x7403): TCC_ THERMISTOR_ HOT	The cap/wipe/purge assembly heater is running away. Unplug the printer NOW! Unplug the printer NOW! Possible swapped sensor cable connectors on I/O #2.
14,004.44 (0x7404): TCC_ THERMISTOR_ SLOW	The cap/wipe/purge assembly heater is not heating at all, or is not heating as quickly as it should. Check for open connection or open thermistor in power supply.
14,005.45:TCC_ WRONG_ TYPE_CAP	The installed cap/wipe/purge assembly is the wrong type for this printer. Verify and install the correct assembly or firmware for this printer.
15,000: Drum thermals	
15,001.42 (0x7c01): TCD_ THERMISTOR_ OPEN	The drum thermistor appears to be open. Replace the drum temperature sensor.
15,002.43 (0x7c02): TCD_ THERMISTOR_ SHORT	The drum thermistor appears to be shorted. Replace the drum temperature sensor.
15,003.44 (0x7c03): TCD_ THERMISTOR_ HOT	The drum heater is running away. Unplug the printer NOW! Possible swapped power cable with the preheater. Possible swapped sensor cable at I/O #2.
15,004.45 (0x7c04): TCD_ THERMISTOR_ SLOW	The drum heater is not heating at all, or is not heating as quickly as it should. Check for open connection or open thermistor in power supply.
16,000: Preheater thermals	
16,001.43 (0x8401): TCP_ THERMISTOR_ OPEN	The preheater thermistor appears to be open. Replace the paper preheater.
16,002.44 (0x8402): TCP_ THERMISTOR_ SHORT	The preheater thermistor appears to be shorted. Replace the paper preheater.
16,003.45 (0x8403): TCP_ THERMISTOR_ HOT	The preheater heater is running away. Unplug the printer NOW!

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
16,004.46 (0x8404): TCP_ THERMISTOR_ SLOW	The preheater heater is not heating at all, or is not heating as quickly as it should. Check for open connection or open thermistor in power supply.
22,000: Media jams	
22,000.37	Jam -- Media at standard tray, unexpected event standard tray ajar 1.
22,001.38	Jam -- Media at standard tray, unexpected event standard tray A4-size transparency.
22,002.30	Jam -- Media at standard tray, unexpected event standard tray not used.
22,003.31	Jam -- Media at standard tray, unexpected event standard tray ajar 2.
22,004.32	Jam -- Media at standard tray, unexpected event standard tray A-size transparency.
22,005.33	Jam -- Media at standard tray, unexpected event standard tray A4-size paper.
22,006.34	Jam -- Media at standard tray, unexpected event standard tray A-size paper.
22,007.35	Jam -- Media at standard tray, unexpected event standard tray not present.
22,008.36	Jam -- Media at standard tray, unexpected event paper pick sensor TRUE.
22,009.37	Jam -- Media at standard tray, unexpected event paper pick sensor FALSE.
22,010.38	Jam -- Media at standard tray, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.
22,011.30	Jam -- Media at standard tray, unexpected event paper A-width sensor TRUE, A4-width sensor FALSE.
22,012.31	Jam -- Media at standard tray, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE.
22,013.32	Jam -- Media at standard tray, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE.
22,014.33	Jam -- Media at standard tray, unexpected event paper preheat entry sensor TRUE.
22,015.34	Jam -- Media at standard tray, unexpected event paper preheat entry sensor FALSE.
22,016.35	Jam -- Media at standard tray, unexpected event paper preheat exit sensor TRUE.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,017.36	Jam -- Media at standard tray, unexpected event paper preheat exit sensor FALSE.
22,018.37	Jam -- Media at standard tray, unexpected event paper exit sensor TRUE.
22,019.38	Jam -- Media at standard tray, unexpected event paper exit sensor FALSE.
22,020.30	Jam -- Media at standard tray, unexpected event paper hand-feed sensor TRUE.
22,021.31	Jam -- Media at standard tray, unexpected event paper hand-feed sensor FALSE.
22,022.32	Jam -- Media at standard tray, unexpected event auxiliary tray not present.
22,023.33	Jam -- Media at standard tray, unexpected event auxiliary tray A-size.
22,024.34	Jam -- Media at standard tray, unexpected event auxiliary tray A4-size.
22,032.33	Jam -- Media at auxiliary tray, unexpected event standard tray ajar 1.
22,033.34	Jam -- Media at auxiliary tray, unexpected event standard tray A4-size transparency.
22,034.35	Jam -- Media at auxiliary tray, unexpected event standard tray not used.
22,035.36	Jam -- Media at auxiliary tray, unexpected event standard tray ajar 2.
22,036.37	Jam -- Media at auxiliary tray, unexpected event standard tray A-size transparency.
22,037.38	Jam -- Media at auxiliary tray, unexpected event standard tray A4-size paper.
22,038.30	Jam -- Media at auxiliary tray, unexpected event standard tray A-size paper
22,039.31	Jam -- Media at auxiliary tray, unexpected event standard tray not present.
22,040.32	Jam -- Media at auxiliary tray, unexpected event paper pick sensor TRUE.
22,041.33	Jam -- Media at auxiliary tray, unexpected event paper pick sensor FALSE.
22,042.34	Jam -- Media at auxiliary tray, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,043.35	Jam -- Media at auxiliary tray, unexpected event paper A-width sensor TRUE,A4-width sensor FALSE
22,044.36	Jam -- Media at auxiliary tray, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE
22,045.37	Jam -- Media at auxiliary tray, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE
22,046.38	Jam -- Media at auxiliary tray, unexpected event paper preheat entry sensor TRUE
22,047.30	Jam -- Media at auxiliary tray, unexpected event paper preheat entry sensor FALSE
22,048.31	Jam -- Media at auxiliary tray, unexpected event paper preheat exit sensor TRUE.
22,049.32	Jam -- Media at auxiliary tray, unexpected event paper preheat exit sensor FALSE.
22,050.33	Jam -- Media at auxiliary tray, unexpected event paper exit sensor TRUE.
22,051.34	Jam -- Media at auxiliary tray, unexpected event paper exit sensor FALSE.
22,052.35	Jam -- Media at auxiliary tray, unexpected event paper hand-feed sensor TRUE.
22,053.36	Jam -- Media at auxiliary tray, unexpected event paper hand-feed sensor FALSE.
22,054.37	Jam -- Media at auxiliary tray, unexpected event auxiliary tray not present.
22,055.38	Jam -- Media at auxiliary tray, unexpected event auxiliary tray A-size
22,056.30	Jam -- Media at auxiliary tray, unexpected event auxiliary tray A4-size.
22,064.38	Jam -- Media at front cover, unexpected event standard tray ajar 1.
22,065.30	Jam -- Media at front cover, unexpected event standard tray A4-size transparency.
22,066.31	Jam -- Media at front cover, unexpected event standard tray not used.
22,067.32	Jam -- Media at front cover, unexpected event standard tray ajar 2.
22,068.33	Jam -- Media at front cover, unexpected event standard tray A-size transparency.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,069.34	Jam -- Media at front cover, unexpected event standard tray A4-size paper.
22,070.35	Jam -- Media at front cover, unexpected event standard tray A-size paper.
22,071.36	Jam -- Media at front cover, unexpected event standard tray not present
22,072.37	Jam -- Media at front cover, unexpected event paper pick sensor TRUE.
22,073.38	Jam -- Media at front cover, unexpected event paper pick sensor FALSE.
22,074.30	Jam -- Media at front cover, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.
22,075.31	Jam -- Media at front cover, unexpected event paper A-width sensor TRUE, A4-width sensor FALSE.
22,076.32	Jam -- Media at front cover, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE.
22,077.33	Jam -- Media at front cover, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE.
22,078.34	Jam -- Media at front cover, unexpected event paper preheat entry sensor TRUE.
22,079.35	Jam -- Media at front cover, unexpected event paper preheat entry sensor FALSE.
22,080.36	Jam -- Media at front cover, unexpected event paper preheat exit sensor TRUE.
22,081.37	Jam -- Media at front cover, unexpected event paper preheat exit sensor FALSE.
22,082.38	Jam -- Media at front cover, unexpected event paper exit sensor TRUE.
22,083.30	Jam -- Media at front cover, unexpected event paper exit sensor FALSE.
22,084.31	Jam -- Media at front cover, unexpected event paper hand-feed sensor TRUE.
22,085.32	Jam -- Media at front cover, unexpected event paper hand-feed sensor FALSE.
22,086.33	Jam -- Media at front cover, unexpected event auxiliary tray not present.
22,087.34	Jam -- Media at front cover, unexpected event auxiliary tray A-size.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,088.35	Jam -- Media at front cover, unexpected event auxiliary tray A4-size.
22,096.34	Jam -- Media at exit cover, unexpected event standard tray ajar 1.
22,097.35	Jam -- Media at exit cover, unexpected event standard tray A4-size transparency.
22,098.36	Jam -- Media at exit cover, unexpected event standard tray not used.
22,099.37,	Jam -- Media at exit cover, unexpected event standard tray ajar 2.
22,100.38,	Jam -- Media at exit cover, unexpected event standard tray A-size transparency.
22,101.30,	Jam -- Media at exit cover, unexpected event standard tray A4-size paper.
22,102.31,	Jam -- Media at exit cover, unexpected event standard tray A-size paper.
22,103.32	Jam -- Media at exit cover, unexpected event standard tray not present.
22,104.33	Jam -- Media at exit cover, unexpected event paper pick sensor TRUE.
22,105.34	Jam -- Media at exit cover, unexpected event paper pick sensor FALSE.
22,106.35	Jam -- Media at exit cover, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.
22,107.36	Jam -- Media at exit cover, unexpected event paper A-width sensor TRUE, A4-width sensor FALSE.
22,108.37	Jam -- Media at exit cover, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE.
22,109.38	Jam -- Media at exit cover, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE.
22,110.30,	Jam -- Media at exit cover, unexpected event paper preheat entry sensor TRUE.
22,111.31	Jam -- Media at exit cover, unexpected event paper preheat entry sensor FALSE.
22,112.32	Jam -- Media at exit cover, unexpected event paper preheat exit sensor TRUE.
22,113.33	Jam -- Media at exit cover, unexpected event paper preheat exit sensor FALSE.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,114.34	Jam -- Media at exit cover, unexpected event paper exit sensor TRUE.
22,115.35	Jam -- Media at exit cover, unexpected event paper exit sensor FALSE.
22,116.36	Jam -- Media at exit cover, unexpected event paper hand-feed sensor TRUE.
22,117.37	Jam -- Media at exit cover, unexpected event paper hand-feed sensor FALSE.
22,118.38	Jam -- Media at exit cover, unexpected event auxiliary tray not present.
22,119.30	Jam -- Media at exit cover, unexpected event auxiliary tray A-size.
22,120.31	Jam -- Media at exit cover, unexpected event auxiliary tray A4-size.
22,128.30	Jam -- Media at exit tray, unexpected event standard tray ajar 1.
22,129.31	Jam -- Media at exit tray, unexpected event standard tray A4-size transparency.
22,130.32	Jam -- Media at exit tray, unexpected event standard tray not used.
22,131.33	Jam -- Media at exit tray, unexpected event standard tray ajar 2.
22,132.34	Jam -- Media at exit tray, unexpected event standard tray A-size transparency.
22,133.35	Jam -- Media at exit tray, unexpected event standard tray A4-size paper.
22,134.36	Jam -- Media at exit tray, unexpected event standard tray A-size paper.
22,135.37	Jam -- Media at exit tray, unexpected event standard tray not present.
22,136.38	Jam -- Media at exit tray, unexpected event paper pick sensor TRUE.
22,137.30	Jam -- Media at exit tray, unexpected event paper pick sensor FALSE.
22,138.31	Jam -- Media at exit tray, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.
22,139.32	Jam -- Media at exit tray, unexpected event paper A-width sensor TRUE, A4-width sensor FALSE.
22,140.33	Jam -- Media at exit tray, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,141.34	Jam -- Media at exit tray, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE.
22,142.35	Jam -- Media at exit tray, unexpected event paper preheat entry sensor TRUE.
22,143.36	Jam -- Media at exit tray, unexpected event paper preheat entry sensor FALSE.
22,144.37	Jam -- Media at exit tray, unexpected event paper preheat exit sensor TRUE.
22,145.38	Jam -- Media at exit tray, unexpected event paper preheat exit sensor FALSE.
22,146.30	Jam -- Media at exit tray, unexpected event paper exit sensor TRUE.
22,147.31	Jam -- Media at exit tray, unexpected event paper exit sensor FALSE.
22,148.32	Jam -- Media at exit tray, unexpected event paper hand-feed sensor TRUE.
22,149.33	Jam -- Media at exit tray, unexpected event paper hand-feed sensor FALSE.
22,150.34	Jam -- Media at exit tray, unexpected event auxiliary tray not present.
22,151.35	Jam -- Media at exit tray, unexpected event auxiliary tray A-size
22,152.36	Jam -- Media at exit tray, unexpected event auxiliary tray A4-size.
22,160.35	Jam -- Media at hand-feed, unexpected event standard tray ajar 1.
22,161.36	Jam -- Media at hand-feed, unexpected event standard tray A4-size transparency.
22,162.37	Jam -- Media at hand-feed, unexpected event standard tray not used.
22,163.38	Jam -- Media at hand-feed, unexpected event standard tray ajar 2.
22,164.30	Jam -- Media at hand-feed, unexpected event standard tray A-size transparency.
22,165.31	Jam -- Media at hand-feed, unexpected event standard tray A4-size paper.
22,166.32	Jam -- Media at hand-feed, unexpected event standard tray A-size paper.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,167.33	Jam -- Media at hand-feed, unexpected event standard tray not present.
22,168.34	Jam -- Media at hand-feed, unexpected event paper pick sensor TRUE.
22,169.35	Jam -- Media at hand-feed, unexpected event paper pick sensor FALSE.
22,170.36	Jam -- Media at hand-feed, unexpected event paper A-width sensor FALSE, A4-width sensor FALSE.
22,171.37	Jam -- Media at hand-feed, unexpected event paper A-width sensor TRUE, A4-width sensor FALSE.
22,172.38	Jam -- Media at hand-feed, unexpected event paper A-width sensor FALSE, A4-width sensor TRUE.
22,173.30	Jam -- Media at hand-feed, unexpected event paper A-width sensor TRUE, A4-width sensor TRUE.
22,174.31	Jam -- Media at hand-feed, unexpected event paper preheat entry sensor TRUE.
22,175.32	Jam -- Media at hand-feed, unexpected event paper preheat entry sensor FALSE.
22,176.33	Jam -- Media at hand-feed, unexpected event paper preheat exit sensor TRUE.
22,177.34	Jam -- Media at hand-feed, unexpected event paper preheat exit sensor FALSE.
22,178.35	Jam -- Media at hand-feed, unexpected event paper exit sensor TRUE.
22,179.36	Jam -- Media at hand-feed, unexpected event paper exit sensor FALSE.
22,180.37	Jam -- Media at hand-feed, unexpected event paper hand-feed sensor TRUE.
22,181.38	Jam -- Media at hand-feed, unexpected event paper hand-feed sensor FALSE.
22,182.30	Jam -- Media at hand-feed, unexpected event auxiliary tray not present.
22,183.31	Jam -- Media at hand-feed, unexpected event auxiliary tray A-size.
22,184.32	Jam -- Media at hand-feed, unexpected event auxiliary tray A4-size.
22,192.31	Jam -- Front access door open.
22,193.32	Jam -- Stripper access door open.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
22,194.33	Jam -- Unexpected hand-feed interrupted operation.
22,195.34	Jam -- Y-axis motor (drum motor) stall.
22,196.35	Jam -- Media not present at preheat entry sensor for transfer start.
22,197.36	Jam -- Media trailing edge time-out at paper exit sensor.
22,198.37	Jam -- Media too short to fully transfer image.
22,199.38	Jam -- Media too long.
22,200.30	Jam -- Media leading edge time-out at paper exit sensor.
22,201.31	Jam --A-width expected,A4-width seen at preheat entry media stage.
22,202.32	Jam --A4-width expected, A-width seen at preheat entry media stage.
22,203.33	Jam -- Standard tray media leading edge time-out at paper pick sensor.
22,204.34	Jam -- Media leading edge time-out at A/A4 paper width sensors.
22,205.35	Jam -- Media leading edge time-out at preheat entry sensor.
22,206.36	Jam -- Media leading edge time-out at preheat exit sensor.
22,207.37	Jam -- Auxiliary tray media leading edge time-out at paper pick sensor.
22,208.38	Jam -- During hand-feed stage, media leading edge time-out at preheat entry sensor.
22,209.30	Jam -- A-width sensor TRUE, A4-width sensor FALSE at preheat entry stage.
22,210.31	Jam -- A-width sensor FALSE, A4-width sensor FALSE at preheat entry stage.
22,211.32	Jam -- Media sensed at handfeed
22,212.33	Jam -- Media sensed at exit tray
22,213.34	Jam -- A width media sensed at preheat entry
22,214.35	Jam -- A-width sensor FALSE, A4-width sensor FALSE at preheat entry stage.
22,224.36	Jam -- media location and cause unknown.
24,000 PostScript Errors	
24,000.17	Engine reports power is off.
24,001.18	Engine reports it is running diagnostics.

Table 4 Front panel and fault history log error codes and messages

Error code	Meaning
24,002.10	Engine is stuck in the VxWorks shell.
24,003.11	Engine is stuck in mechanism initialization.
24,004.12	*unused*
24,005.13	Engine is in state Ready but isn't permitting commands.
24,006.14	Engine is stuck, in STANDBY.
24,007.15	Engine is stuck while printing.
24,008.16	Engine is stuck while cleaning the drum.
24,009.17	Engine is stuck while purging the printhead.
24,010.18	Engine is stuck while wiping the printhead.
24,011.10	Engine is stuck while oiling the rollers.
24,012.11	*unused*
24,013.12	Engine has a fault but won't indicate why. Possibly needs new drum maintenance tray or left maintenance tray sensor is defective or disconnected.
24,014.13	Engine is stuck while powering down.
24,015.14	*unused*
24,016.15	Engine is stuck while oiling the drum.
24,017.16	Engine is stuck while turning the pick rollers.
24,018.17	Engine is stuck while warming up -- thermals won't stabilize.
24,019.18	Engine is stuck while warming up -- thermals are stable.

System power-up sequence

The following lists the chain of events that occur when you turn on a printer. The exact chain of events depends upon where the printer "believes" the printhead is positioned. The printer records in NVRAM the last known position of the printhead and the cap / wipe / purge assembly.

Power switch turned on:

1. Low-level, power on self test (POST) diagnostics are performed by both the print engine (68K) and PostScript (29K) processors. The two status LEDs at the rear panel should be blinking.
2. If POST diagnostics pass, the front panel **Power** and **Error** LEDs are turned on.
3. Front panel **Error** LED is turned off and the LCD display is cleared.
4. **If the printhead is in either the Standby or Print position:**
   a. If the printer is in its Standby mode, the cap / wipe / purge motor is run to ensure that the cap / wipe / purge assembly activates its home position sensor. If the printer is in Print mode, the printhead is moved to its X-axis home-position and then centered.
   b. The process motor is rotated to tilt the printhead forward (if not already forward), rotate all the rollers to their ready positions, disengage the transfix roller, and lower the maintenance tray blade and wiper.

   If the printhead is in the cap/wipe/purge position:
   a. The heaters in the printhead and cap / wipe / purge assembly are activated to melt the ink "gluing" them together.
   b. The printhead is tilted back.
   c. The ink is allowed to drain from the cap / wipe / purge assembly.
   d. The cap / wipe / purge assembly is lowered to its home position.
   e. A short wipe is performed and the cap / wipe / purge assembly is returned to its home position.
   f. The process motor is rotated to tilt the printhead forward (if not already forward), rotate all the rollers to their ready positions, disengage the transfix roller, and lower the maintenance tray blade and wiper.
   g. The printhead is moved to its X-axis home position and then centered.

If the printhead is in the print position but the cap/wipe/purge assembly is in some unknown intermediate position:

a. If the cap / wipe / purge assembly is not detected in its home position, then the heaters in the printhead and cap / wipe / purge assembly are activated in case the printhead and cap / wipe / purge may be “glued” together by cooled ink.

b. The cap / wipe / purge assembly is lowered to its home position.

c. The process motor is rotated to tilt the printhead forward (if not already forward), rotate all the rollers to their ready positions, disengage the transfix roller, and lower the maintenance tray blade and wiper.

d. The printhead is moved to its X-axis home position and then centered.

e. A short wipe is performed and the cap / wipe / purge assembly is returned to its home position.

5. The printer energizes the process axis and y-axis motors eight times at different current levels to determine at which point they “stall out,” these values are stored in NVRAM and are used to determine when abnormal events occur, such as double-picks or jams that stall the motors.
6. The printhead is tilted back to the locked position.
7. The front panel displays a warm up message.
8. The heaters are enabled and the drum begins to rotate.
9. The cap / wipe / purge assembly is positioned to the purge position.
10. The printhead tilts forward and a purge cycle begins.
11. A flush page is printed.
12. The front panel displays a message that the printer is initializing and then ready.

The print engine is initialized.

Testing motor and solenoid resistances

1. Turn off the printer and disconnect the power cord.
2. With a VOM set for measuring resistance, test each motor's windings for correct resistance (disconnected from the printer). Rotate the motor's drive shaft slightly while taking the measurement.

Table 5 Motor and solenoid resistances

Motor or solenoid	Resistance (approximately)
Process motor	3 ohms
Y-axis motor	2 ohms
X-axis motor	60 ohms/phase
Cap/wipe/purge assembly motor	80 ohms/phase
Head-tilt solenoid	45 ohms
Maintenance tray camshaft solenoid	45 ohms
Paper-pick solenoid	45 ohms
Transfix cam solenoid	45 ohms

In general, if you measure any low resistance from a motor winding to ground while the motor is installed, replace that motor.

Media jams and the paper path

Media-based problems

1. Check that the correct type of media is being used. Fanning the media eliminates its tendency to double-pick.
2. Inspect the paper for bent, torn or folded corners.
3. Ensure that the correct media is in the correct paper tray. The tray indicates the size and the type of media loaded in the tray; the printer does not directly sense the size or type of media.
4. Ensure the correct weight of paper is being used. Use 16 - 32 lb. Bond (60 - 120 g / m^2) in the paper trays. For manual feeding use 16 - 32 lb. Bond (60 - 120 g / m^2) or 50 - 80 lb. Cover (135 - 220 gm^2).

Paper-pick errors

Paper-pick errors occur when the media in the paper tray mispicks or the printer double-picks two or more sheets of paper.

1. Clean the interior of the paper tray. When installing paper, push the stack of paper down until the tray's lift-plate locks to the bottom of the tray. This prevents the top sheet of paper from being mispositioned as the tray is inserted in the printer.
2. Fan the media before inserting it in the paper tray.
3. Ensure that the media fits properly in the tray. With the left edge of the stack of paper flush against the tray rail, there should be a small gap between the opposite edge of the stack of paper and the opposite side rail.
4. Check that the pick roller is being rotated. If it is not, go to the topic “Checking the process motor and drive train” on page 37. Otherwise, go to Step 5. In its starting position, the pick roller’s flat side should face down; the flat, keyed end on the left end of the pick roller shaft faces up.
5. Clean the pick roller. Paper dust can coat the pick roller and affect its ability to grip the paper and pull it out of the tray.
6. Use the motor and solenoid test to check the operation of the paper pick system.
7. Inspect the wiring harness leading to the paper transport clutch for nicks, cuts or crimped wiring. Ensure the connector is seated.
8. Inspect the paper-feed module for obstructions.

Print transfer jams

1. Test the paper preheater sensors. If the sensor fails the test, replace the paper pre-heater.
2. Check to see if the upper feed roller drive belt is broken or slipped off of its pulleys. In such a case, the upper roller does not rotate when the lower roller rotates.
3. Inspect the idler rollers on the inside of the top-front cabinet panel; they should rotate freely.
4. Check that the feed rollers rotate smoothly and that the front cover is fully closed and seated.
5. Check the paper-eject path for obstructions.

Checking the process motor and drive train

1. Determine if the process motor runs. If it does not rotate, go to Step 2. If it does rotate, go to Step 5.
2. Measure to determine if +40 VDC is being supplied to the motor. If it is, go to Step 4. If it is not, inspect the process motor's wiring harness. If the harness is functional, then troubleshoot the power control board and power supply.
3. Disconnect the motor's wiring harness. Measure the resistance of the motor's windings. The expected resistances are listed in Table 5 “Motor and solenoid resistances,” on page 35. If the windings are opened, shorted or far out of tolerance, replace the motor.
4. If the motor’s winding resistances are within specification, inspect the wiring harness for nicks, crimps, opens or other problems. If the harness is functional, then replace the power control board.
5. Inspect the gear train on the inside of the printer frame; look for stripped gears or broken teeth.

Media skews passing through the paper path

1. Check to see if the media is excessively curled. Curled media can get mistracked in the paper path.
2. Examine the paper path; ensure it is clear of obstructions.
3. Ensure that the pick roller is clean so that it picks up a sheet of media smoothly and evenly.
4. Check the upper and lower feed rollers. Also make sure that the front door is properly closed.

Printing and print quality problems

Streaks or lines in the print parallel to the short axis of printing

1. Check the y-axis belt tension. If the y-axis drive is not smoothly and consistently rotating the drum, horizontal bands or lines appear in the print.
2. Replace the Y-axis motor.
3. Replace the power control board.

Streaks or lines in the print parallel to the long axis of printing

1. Possible missing weak jet. Print the Service Test Print 2 “Weak Jet” to determine if a jet is not performing. Perform a printhead cleaning cycle to try to clean a clogged jet. If necessary, turn off the printer and allow the printhead to cool for 3 hours.
2. Ensure that no wiring harness are interfering with the horizontal slewing of the printhead. In such a case, the streaks or lines should be parallel and evenly spaced.
3. The x-axis drive is not functioning correctly. If the x-axis drive does not slew the printhead smoothly and evenly during printing, vertical lines appear in the print. Print Service Test Print 1 “J-step” to reveal an x-axis problem. Replace the x-axis drive, if indicated.
4. Replace the x-axis drive assembly.
5. Replace the power control board.

Scratches in the transparency parallel to the long axis of printing

1. Usually caused by foreign debris in the paper path. Run a transparency through the manual feed to see if the scratch appears on the print. If it does not the scratch occurred in the paper pick and early transport of the transparency film.
2. A scratch caused by the paper preheater can be caused by debris built up on the heating surfaces. Run the front panel clean procedure `Clean: Ink smears`. Additional, you can manually force a sheet of thick 65 to 80 lb. paper through the paper preheater to “buff” the paper preheater heating surfaces. With the leading and trailing ends of the sheet of paper extending from the entry and exit of paper preheater, gently pull the sheet of paper back and forth several times and then remove the sheet of paper. Be careful of the paper sensor flags.

White portion of print is colored

1. Color on a print where no color should be printed is often called a latent image. A latent image remains on the drum when it should have been transferred to its sheet of paper. An insufficient amount of oil on the drum, provided by a defective or old maintenance tray may be the problem. Replace the maintenance tray.
2. Replace the power control board.
3. Non-functioning printhead data cable. Replace the main board.
4. Replace the printhead.

Color is uneven

1. This may be due to poor thermal regulation in the printer, resulting in uneven heating of the printhead, which in turn results in uneven ink drop jetting.
2. Adjust the printer for best print quality.
3. Replace the printhead.

Not printing

The printer processes a sheet of paper, but no image is printed on it.

1. No drive voltages to the printhead. Check for a loose connector leading to the printhead.
2. Replace the power control board.
3. Replace the printhead.

Printing too light or too dark

Adjust the printer for best print quality.

Image is offset or cut off

1. Check the application for the correct image sizing and orientation.
2. Ensure that **Letter** or **A4** is the selected paper-size.

Wrinkling

1. Try different media.
2. Replace the drum / transfix assembly.

Oil streaks on top of print

1. Clean the stripper fingers.
2. Run chase pages through the printer to clean the drum. PC diagnostics can help initiate chase pages.
3. Replace the maintenance tray.

Problems and solutions

Power problems

Table 6 Power problems

All front panel indicators remain off.	Check to see if the printer is plugged in. Check the line power fuses inside the power supply.
The printer does not initialize upon power-up.	Check the power on/off switch. Check the power supply for proper input and output voltages. Is the power supply set to the correct 115/220 VAC setting?

Front panel indications

Table 7 Front panel indicators and their meanings

Media tray indicates empty when it is not.	If there is media in the tray, then check the media tray microswitches (on the right side of the tray slot). Check to see if the paper-empty flag is broken. Check the media selection switches on the right side of the paper tray.

Macintosh printing problems

Table 8 Macintosh printing problems

Image never prints. Printer acts as if it is receiving data, but nothing comes out of printer or it goes back to "Ready" mode without printing image.	Make sure that the correct Phaser 340 icon was selected in the **Chooser**. Try printing the job again. In the **Chooser**, switch background printing to *off*. Try printing the job again. Download the Error Handler utility and try printing the job again. If an error page is printed after printing the job again, call the Customer Support Hotline for further assistance. Please have the error page in hand. If available, try printing to a black-and-white PostScript printer (such as an Apple LaserWriter). If the file does not print on the black-and-white PostScript printer, this may mean that the problem may be application- or network-related. Ensure that the print engine can print by pressing and holding the rear panel **TEST** switch to print an internal test print.

Table 8 Macintosh printing problems (cont'd.)

Image prints in black-and-white.	In the print dialog box, make sure the **Color/Grayscale** option has been selected. Make sure that the Phaser 340 icon was selected in the Chooser. Try printing the job again. Check the version of your LaserWriter driver to ensure that it is version 6.0.7 or higher. Earlier versions of the driver do not support color PostScript. The application may require special instructions to print. Check in the *Phaser 340 Drivers and Utilities Printing Reference.*
Image is rotated 90 degrees.	In the application's **Page Setup**, make sure that the image is selected to print in portrait or landscape orientation.

Workstation printing problems

Table 9 Workstation printing problems

Image never prints. Printer acts as if it is receiving data, but nothing comes out of the printer or the printer goes back to "Ready" mode without printing an image.	For serial or parallel printing. Ensure that the print file ends with a "CTRL-D" character. CTRL-D indicates the end-of-file, which the printer responds to by closing host-to-printer communications and then processing and printing the file. Use a text editor to open and examine the file. There is a utility file that you can use to tag or remove a CTRL-D to the end of a print file. TCP/IP and Novell protocols do not accept CTRL-D with the print files. Refer to the network user manual.

PC DOS printing problems

Table 10 PC DOS printing problems

Image never prints. Printer acts as if it is receiving data, but nothing comes out of printer, or the printer goes back to "Ready" mode without printing image.	Make sure that the computer is communicating with the printer. At the DOS prompt, type the following in lowercase letters: **echo showpage >** *port:* *(substitute* **LPT1**:, **LPT2**: or **COM1**, etc., for *port:*) The printer responds by sending a page through the print cycle and ejecting a blank page. If this does not happen, check your cable, or try a different parallel cable. If using the serial port, refer to the serial port configuration. Ensure that the print file ends with a "CTRL-D" character. CTRL-D indicates the end-of-file, which the printer responds to by closing host-to-printer communications and then processing and printing the file. Use a text editor to open and examine the file. On-screen, a "CTRL-D" character appears as a "❖" character. Check and add, if necessary, the following line to the *AUTOEXEC.BAT* file: **mode = LPT1,,p** (If your port is not LPT1, substitute **LPT2:** or **COM1:** for the correct port). This turns on printer retry indefinitely. Is the printer in PostScript mode? Check this by sending the file *TESTHPGL.PLT* (located on the Tektronix Utilities diskette, *HP-GL* directory) to the printer. At the DOS prompt, type the following DOS command: **COPY TESTHPGL.PLT LPT1:** (If your port is not LPT1, substitute **LPT2:** or **COM1:** for the correct port). The PC responds with `1 FILE COPIED`. If this file prints stating that the printer is in HP-GL mode, then the printer needs to be changed back to the PostScript mode. Use the utility located on the Tektronix diskettes to change language emulation. Refer to the *Phaser 340 Drivers and Utilities Printing Reference* for complete instructions. Download *TEKEHAND.PS* file located on the Tektronix Utilities diskette. At the DOS prompt, type the following DOS command: **COPY TEKEHAND.PS LPT1:** (If your port is not LPT1, substitute **LPT2:** or **COM1:** for the correct port). The PC responds with `1 FILE COPIED`. The printer now has a PostScript error handler present which remains resident until power is cycled on the printer. Resend the image file that was not printing. Any PostScript errors encountered by the printer are recorded on a printout. Call Tektronix Customer Support at 1-800-835-6100 for more assistance (save the print with the error message).

Windows printing problems

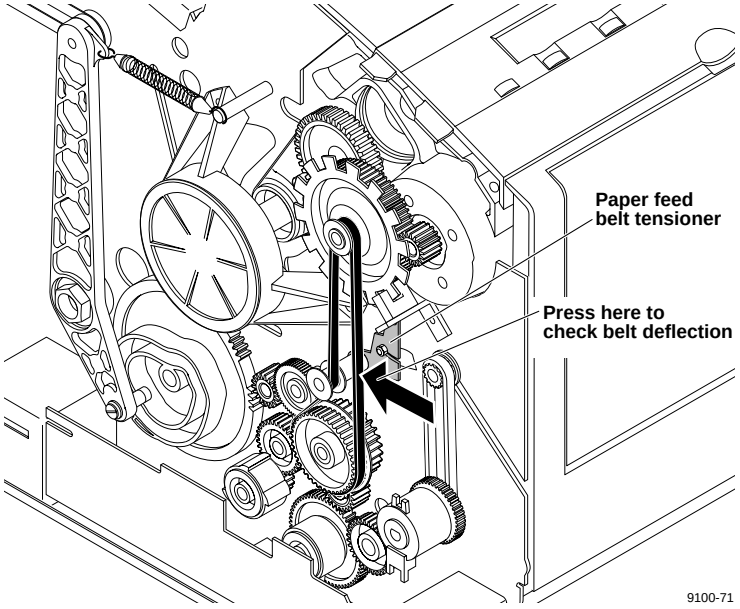
Table 11 Windows printing problems

Image never prints. Printer acts as if it is receiving data, but nothing comes out of printer or the printer goes back to "Ready" mode with out printing image.	Perform the same troubleshooting ideas suggested in the previous topic "PC DOS printing problems." Under the printer's setup options, set **RETRY = 850**
Blue color on the screen is printing too purple.	Many applications describe color as percentages of a video display screen's primary colors: red, green, and blue (RGB). When a printer translates these RGB colors into its own primaries of cyan, magenta, and yellow (CMY), blue is often printed as purple. To adjust blue from within Microsoft Windows: Within the Tektronix PostScript Windows driver you have an option, **Vivid Color**, that alters to blue colors that are appearing purple. To Access this option, select: **Printer Setup** **Options** **Printer Features** **Media Selection** You are now at the **TekColor Options** window; select **Vivid Color**. This TekColor Options window can also be accessed through the Windows Control Panel item Printers.
Printing from Windows produces the message "Problem writing device LPT1: Cancel or Retry".	Option #1: **1.** Select **Printers**, and click **Configure**. **2.** Change the port selection from **LPT1** to **LPT1.OS2**. The **MODE** command disables DOS timeouts. The LPT1.OS2 selection forces Windows to print through DOS instead of directly to the printer. Option #2: The solution above does not allow users to spool documents using the PrintManager. To use the PrintManager as well as correcting time-out problems, edit the following line in the *win.ini* file: `TransmissionRetryTimeout=45` to: `TransmissionRetryTimeout=850` In Windows 3.1: **1.** Follow the above instructions for issuing the **MODE** command in DOS. **2.** Start Windows. **3.** Select the **Control Panel** from the **Main** menu. **4.** Select **Printers** **5.** Select the appropriate printer and click on **Connect**. **6.** Uncheck the **Fast Printing Direct to Port** box.

Paper-feed belt tension adjustment

1. Turn off the printer and remove the left-side cabinet panel.
2. With a spring scale, press inward on the right side of the paper-feed belt. When properly set you should measure about 1 to 7 ft./lbs. (1/4 to 1/2 inches of deflection, 6 to 12 mm).

   To adjust the belt tension, loosen the paper-feed belt tensioner, adjust its position for proper belt tension and then tighten the tensioner in place. Do not over-tension the belt.



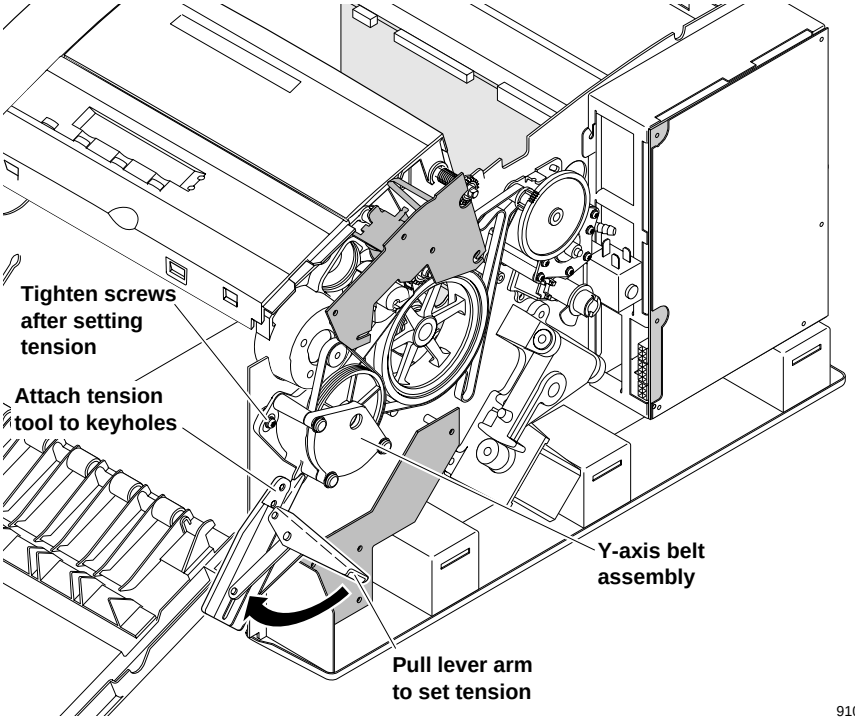
Setting paper-feed belt tension

3. Reinstall the left side panel.

Y-axis belts tension adjustment

Perform this procedure after loosening or removing the y-axis belt drive assembly.

1. Ensure that the three screws that secure the Y-axis drive assembly are 1/4 turn loose.
2. Attach the Y-axis belt tension tool (in its unloaded or folded out position) to the keyholes in the side frame of the printer just below and in front of the Y-axis drive assembly. The tool's fishhook should engage the eyelet of the Y-axis drive assembly.
3. Pull forward and down on the lever arm of the tension tool to apply tension to the Y-axis belts.
4. While the belts are under tension, rotate the Y-axis motor pulley 10 times to rotate the belts and seat them in place.
5. Beginning with the upper-right screw, tighten the three tension set screws to 30 in./lbs. to secure the Y-axis drive assembly in place.
6. Release the tension tool's lever arm and remove the tool.
7. Reassemble the printer and make a test print.


Tighten screws after setting tension
Attach tension tool to keyholes
Y-axis belt assembly
Pull lever arm to set tension
9100-68

Setting the Y-axis belt tension

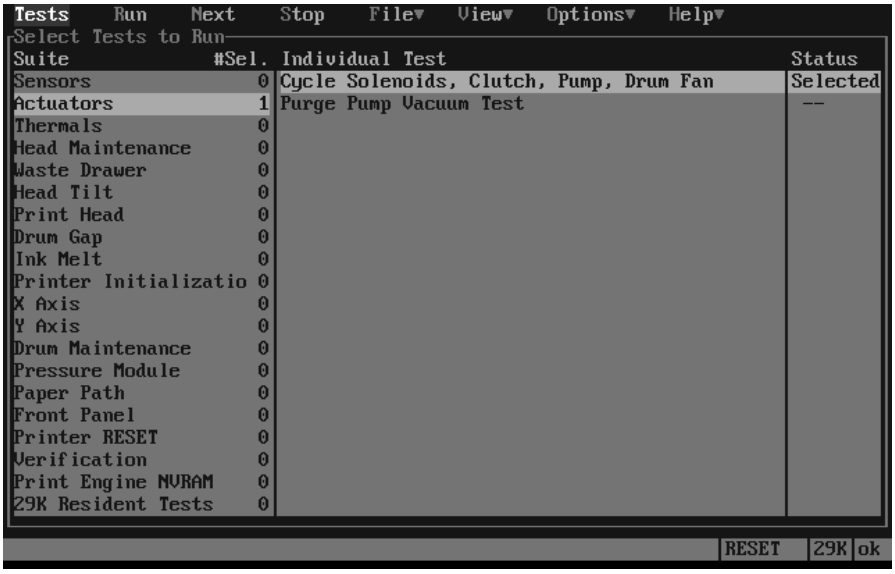
Printhead-to-drum spacing adjustment

Tool required

- Printhead-to-drum gap tool
- 9/64 in. hex tip
- T-20 TORX tip
- Small (3/16 in.) flat-blade screwdriver
- Magnetic screwdriver
- PC diagnostic software

This procedure assures that the printhead is the proper distance from the drum. Make this adjustment after removing or replacing the printhead. If you cannot use the PC diagnostics to assist with this procedure (due to security restrictions at the customer site), then do the following: During the procedure allow the printer to power up to its Ready state and then open the front cover to stop all motor motion (the printhead will start to cool), quickly continue the procedure at Step 4. When you finish the adjustment, close the front door, allow the printhead to warm up and then check the adjustment.

1. Remove the top cover. Remove the metal dust cover.
2. Start the PC diagnostics program. Activate the diagnostic's `Printhead to Drum Gap Adjustment(Hot)` routine. The routine should automatically center the printhead to the drum. Following this, the routine regulates the printhead and drum temperature to their Ready state temperatures. *Version 2 printers (serial-numbered printers BCxxxxx and up) feature a front panel menu item, "Head-To-Drum Adjust," that accomplishes the same functions.*
3. When the printer is ready, press **Enter** to stop the drum and begin the gap adjustment.



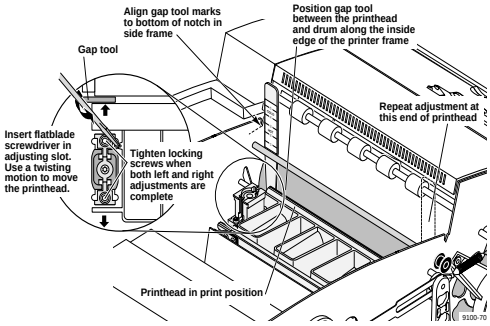
Printhead to drum gap adjustment menu

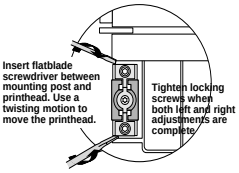
4. If not already tightened, tighten the printhead mounting screws to 20 in. lbs.

5. If not already loose, loosen the printhead's four locking screws (two at each end of the printhead until they are just snug in place.

6. At one end of the printhead, slide the printhead gap tool, between the printhead and the drum. Align the outside edge of the tool with the inside surface of the printer side-frame. The flat side of the gap tool, marked HEAD, faces the printhead.

   Hold the gap tool so its **2 HOT 3** mark (which represents a 0.024 inch gap between the printhead and the drum) is level with the *bottom* of the notch in the side of the printer frame. With a small, flat-blade screwdriver, minutely move the printhead to hold the gap tool snugly but still allow it to be easily removed. You should not feel any tension or gripping between the printhead and the drum between marks **1** and **2** (which equals a 0.022 inch gap).


Align gap tool marks to bottom of notch in side frame
Position gap tool between the printhead and drum along the inside edge of the printer frame
Gap tool
Repeat adjustment at this end of printhead
Insert flatblade screwdriver in adjusting slot. Use a twisting motion to move the printhead.
Tighten locking screws when both left and right adjustments are complete
Printhead in print position
9100-70


Insert flatblade screwdriver between mounting post and printhead. Use a twisting motion to move the printhead.
Tighten locking screws when both left and right adjustments are complete

Spacing the printhead to the drum

7. Repeat the gap adjustment in Step 6 for the other end of the printhead.

8. Snug the four locking screws using an X-pattern. Then tighten the four screws, using the same X-pattern, to 20 in./lbs.

9. Recheck the gap on both end of the printhead.

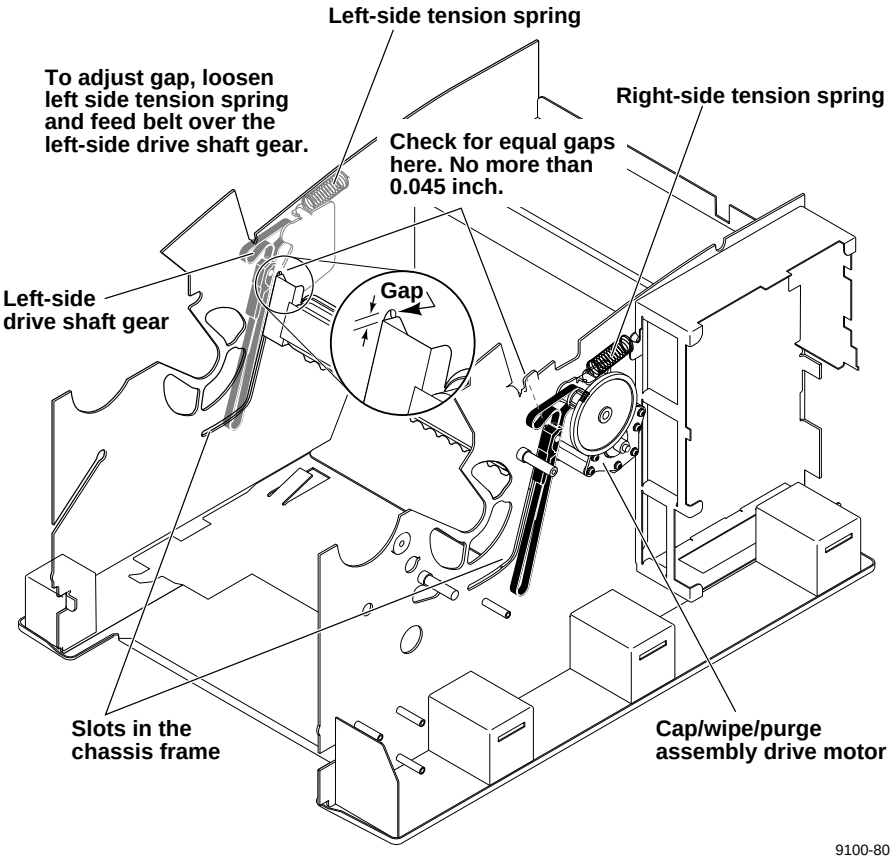
10. Reinstall the dust cover and top cover.

Cap/wipe/purge assembly belt adjustments

The tension of the cap / wipe / purge assembly belts is factory-set. Do not adjust them. The belts are kevlar-reinforced; they will not stretch over their lifetime. The belts are also factory-adjusted for parallel tracking (alignment). As long as the belts, cap / wipe / purge assembly motor, or the belt clips (which hold the cap / wipe / purge assembly) are not disturbed, no adjustment is needed.

However, if you replace one or both of the belts or the cap / wipe / purge drive motor, you must ensure that the belts are in alignment (timing) with each other; this ensures that the cap / wipe / purge assembly the belts carry is perfectly aligned to the faceplate of the printhead. If the belts are not aligned, the printhead purging is ineffective due to poor sealing between the printhead faceplate and the cap / wipe / purge assembly.

1. Ensure that the cap / wipe / purge assembly is properly installed. Also ensure that the cap / wipe / purge drive motor is installed in place and that both the left- and right-side drive belt tension springs are hooked in place.
2. Rotate the large drive gear to pull the cap / wipe / purge assembly to the top of its travel in the chassis frame slot.
3. Inspect the left- and right-side brackets of the cap / wipe / purge assembly relative to the top of the left- and right-side chassis frame slots; the gaps should be the same on each end.
4. If the gaps are not the same, unhook the cap / wipe / purge assembly drive belt tension spring on the left side of the printer to relieve tension on the belt. Slip the belt by one tooth over the left-side drive shaft gear. Hook the tension spring back in place and recheck the gap.
5. Repeat until the gaps are the same.

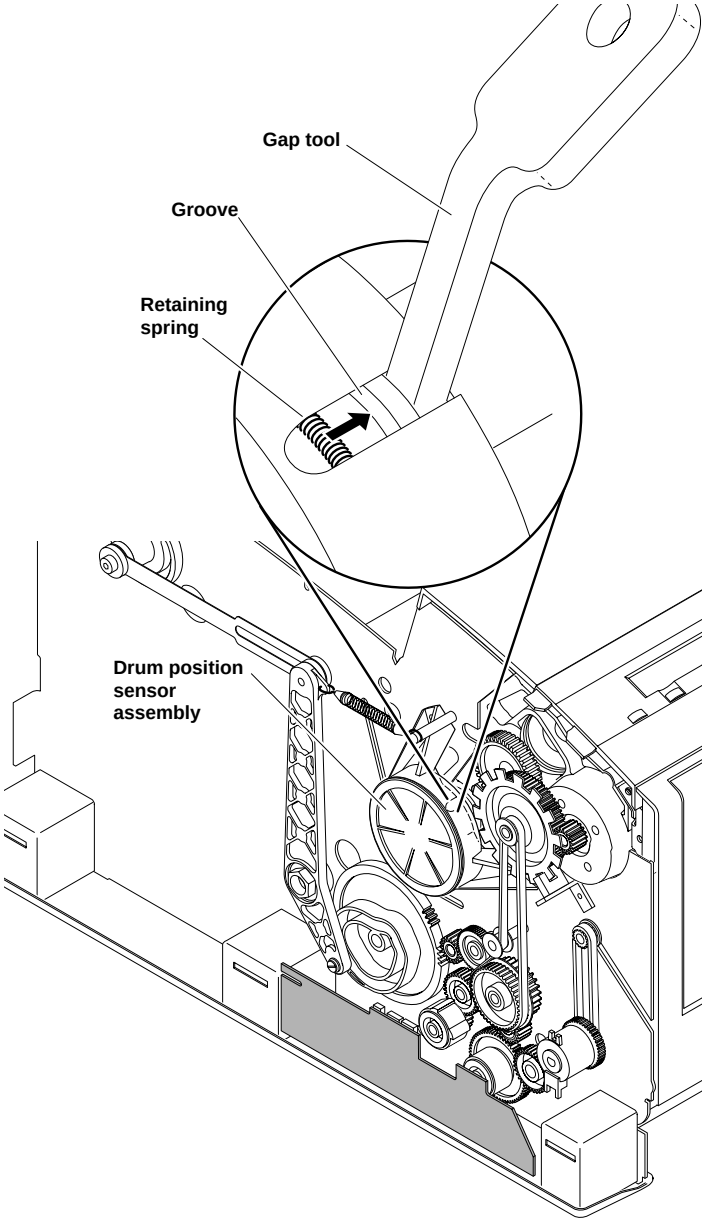

Left-side tension spring
To adjust gap, loosen left side tension spring and feed belt over the left-side drive shaft gear.
Right-side tension spring
Check for equal gaps here. No more than 0.045 inch.
Gap
Left-side drive shaft gear
Slots in the chassis frame
Cap/wipe/purge assembly drive motor
9100-80

Aligning (timing) the cap/wipe/purge assembly drive belts

Drum position encoder gap

This procedure ensures that the drum position sensor assembly's encoder wheel rotates freely inside the gap of the drum position sensor without the encoder wheel's disk touching the sensor. If the disk touches the sensor, it can abrade the disk and result in erroneous drum position readings.

1. Ensure that the retaining spring is not in the drum position sensor assembly's encoder wheel groove. This ensures that the encoder wheel is not tensioned and slides easily onto the drum shaft.
2. If not already mounted in place, secure the drum position sensor assembly onto the drum shaft and secure it to the printer frame.
3. Through the access hole in the drum position sensor assembly, position the encoder gap tool on the drum shaft.
4. Reposition the drum position sensor assembly's encoder wheel on the drum shaft until it butts firmly against the encoder gap tool.
5. Holding the gap tool in place, with a small, flat-blade screwdriver, slide the encoder wheel's retaining spring into the encoder wheel's groove.



Setting the drum position encoder gap

6. Remove the gap tool. Reassemble the printer and make a test print.

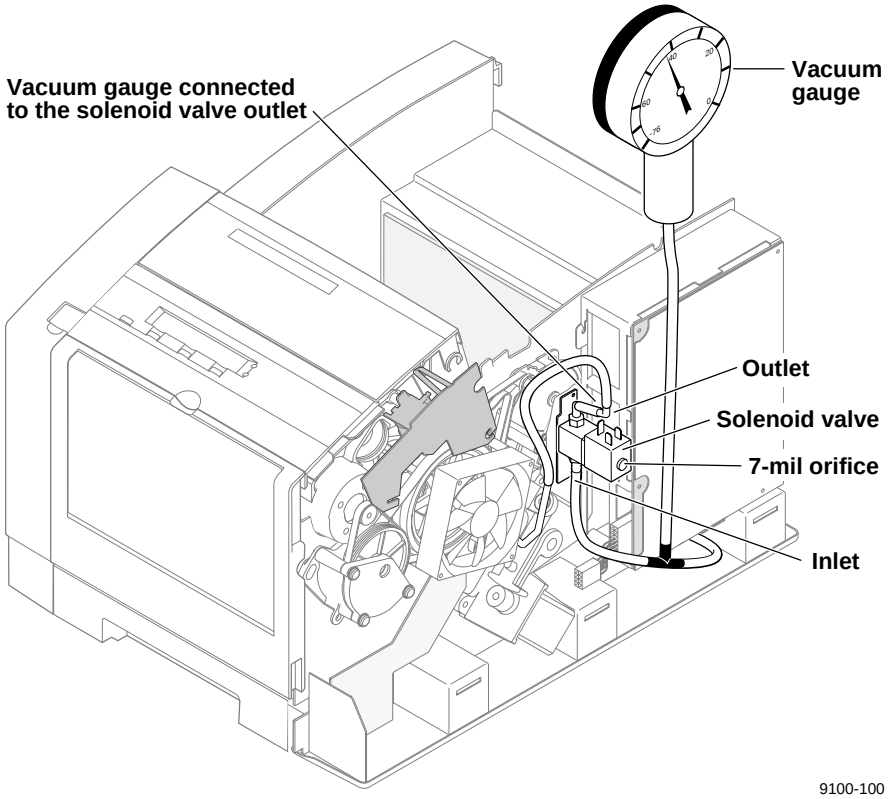
Vacuum check

Tools required

- Magnetic screwdriver
- T-20 TORX tip
- PC diagnostics
- Vacuum gauge
- T-15 TORX tip

Use this check to verify the actions of the vacuum pump and the solenoid valve. In addition, you can determine if the cap / wipe / purge assembly is sealing properly against the printhead faceplate.

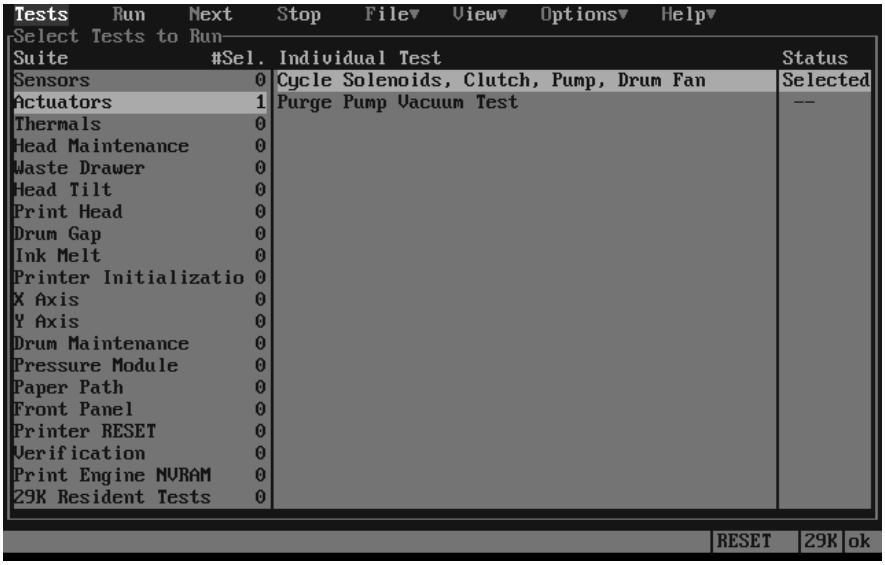
1. Turn off the printer and remove the power cord.
2. Remove the top and right-side covers
3. With a T-connector, connect the vacuum gauge to the inlet side of the solenoid valve. This allows you to check the action of the vacuum pump and accumulator.



Connecting the vacuum gauge to the printer

4. Turn on the printer and enable the PC diagnostics.

5. Scroll to and select the test suite **Actuators**. Select and run the test **Purge Pump Vacuum Test**.



Selecting the vacuum check test

6. The test prompts you to measure the vacuum created in the accumulator as it runs the vacuum pump for about 90 seconds. You should see a vacuum of 51 cm Hg (20 in. Hg, 9.8 psi) created. As the solenoid valve is energized the vacuum should bleed off to 0 is about 5.6 seconds. If the vacuum does not reach the expected value, there is a leak in the vacuum system from the pump, the accumulator and their plumbing or the vacuum pump is defective.
7. Connect the vacuum gauge to the outlet side of the solenoid valve.
8. Run the **Purge Printhead Test** from the **Head Maintenance** test suite. When the solenoid valve is energized you should see the vacuum gauge jump to the value 51 cm Hg (20 in. Hg, 9.8 psi) and within 5.6 seconds bled off to 0. This allows you to check the action of the vacuum as it is applied to the printhead; the cap / wipe / purge assembly should be sharply sucked against the printhead faceplate. If it is not, there may be an ink clog in the vacuum tube leading to the cap / wipe purge assembly.

If the vacuum does not bleed off at all then the air valve is not opening properly or the 7-mil orifice (a part of the valve solenoid) is blocked. *If the printhead is hot, such a condition can allow ink to be sucked into the vacuum system tubing.* If the vacuum bleeds off too quickly, then the cap / wipe / purge assembly is defective or check for the cap / wipe / purge assembly is not sealing properly to the faceplate. Check the cap / wipe / purge assembly is properly positioned by performing the “Cap / wipe / purge assembly belt adjustments.”.

Cleaning the printer

Supplies required

- Phaser 340 cleaning tray
- Foam swabs
- Alcohol-dampened cloth
- 90% pure isopropyl alcohol

Caution *Do not use* ***rubbing alcohol*** *because it can contain water and oils that leave undesirable residue on the printer parts. Never use* ***water*** *to clean the printer's internal components.*

Appropriate cleaning procedures, as listed in the following tables, should be performed when specific print-quality or paper transport problems occur.

Light stripes or missing colors

Problem type	Solution
Missing or light-colored stripes on prints.	Select the automated procedure `Cleaning for light stripes: print head` from the front panel `Clean` menu.

Ink smears, oil spots or random ink streaks

Problem type	Solution
Ink smears on the front, back or edges of a page.	■ Select the automated procedure `Cleaning for ink smears: internal paper path` from the front panel `Clean` menu. ■ Select the automated procedure `Cleaning for ink smears: paper feed rollers` from the front panel `Clean` menu.
Oil (drum fluid) on top edge of print.	Select the automated procedure `Cleaning for ink smears: paper exit path` from the front panel `Clean` menu.

Media jams at the standard tray

Problem type	Solution
Paper-pick or jamming problems at the tray.	Select the automated procedure `Cleaning for media tray jams: media pick rollers` from the front panel `Clean` menu.

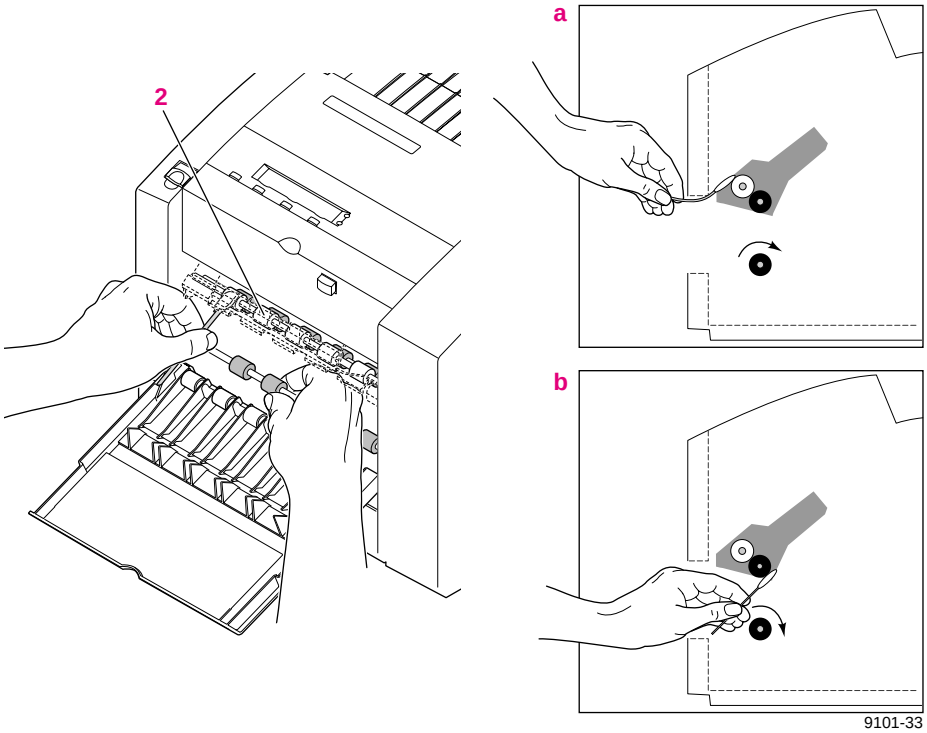
Cleaning for ink smears: paper feed rollers

1. Open the front cover.

Caution *Hot surfaces exist behind the upper paper feed rollers. To avoid personal injury during cleaning procedures, do not reach in behind the paper feed rollers.*

2. To clean the upper white plastic rollers, place an alcohol-soaked swab on top of each upper roller and lift on the swab to create pressure against the roller. Turn the lower roller shaft with your thumb and forefinger to operate the upper feed rollers.

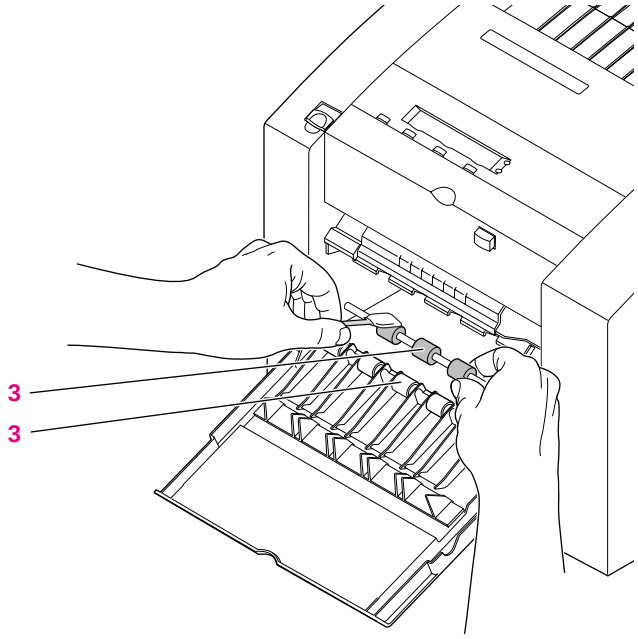
   a. To clean the upper rubber rollers, place and hold an alcohol-soaked swab against the underside of each roller while turning the lower roller shaft with your thumb and forefinger. You may need several swabs to clean the rubber rollers. If the swab becomes dirty during cleaning, discard it and use another.



Cleaning the upper paper feed rollers

   b. To clean the lower rubber feed rollers, place and hold an alcohol-soaked swab on top of each roller while turning the lower feed roller shaft.

3. To clean the lower white plastic rollers, place and hold an alcohol-soaked swab on top of each roller while turning the individual roller with your thumb and forefinger.



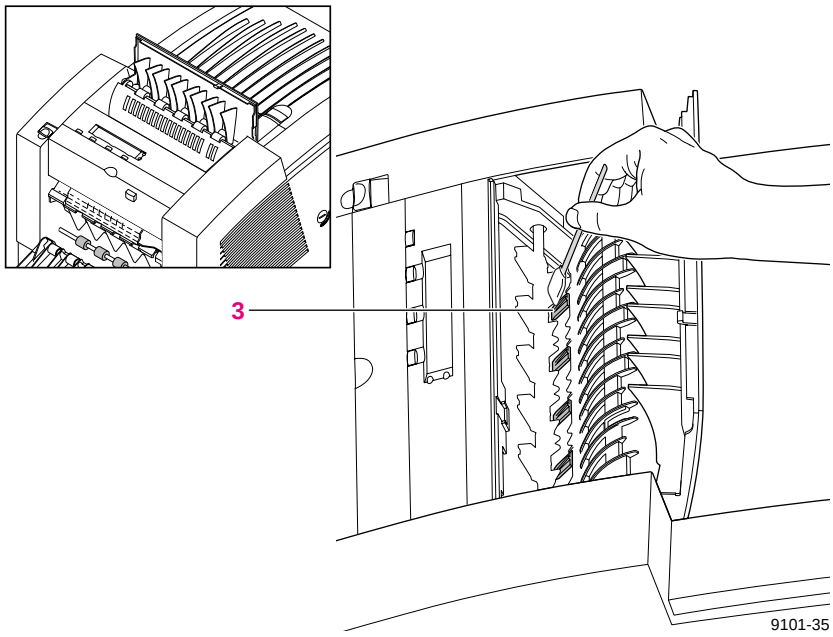
Cleaning the lower feed rollers

4. Close the front cover.

Cleaning for ink smears: paper exit path

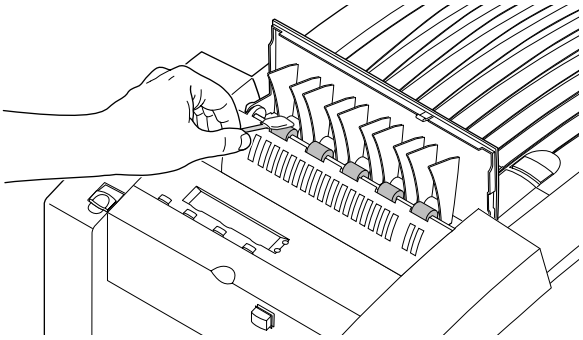
1. Open the front cover.
2. Open the exit cover using the blue release button located inside the front cover at the top of the printer
3. To clean excess ink particles and drum fluid from the colored exit fingers, gently wipe the top surface of each finger using a *dry* swab.

Caution *To avoid damaging the print drum and exit fingers, never scrape excess ink with a tool or finger nail. Use a dry swab provided with the cleaning kit.*



Cleaning the exit path

4. To clean the rubber exit rollers, place and hold an alcohol-soaked swab against each roller and turn it several times.

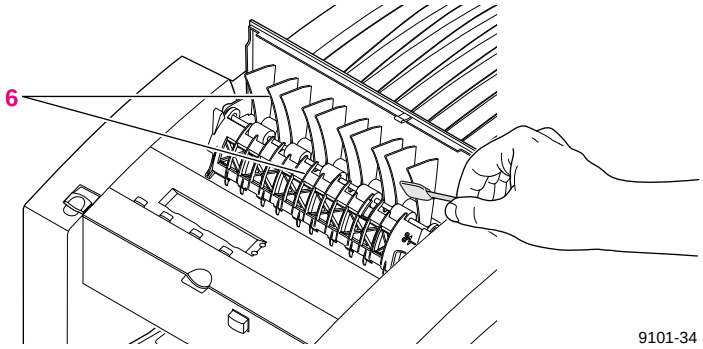


Cleaning the exit rollers

Note *You may notice some staining of the exit rollers while performing the cleaning procedure. This is normal and does not indicate additional cleaning is necessary. Simply clean rollers to remove any build-up of ink.*

5. To clean the white plastic exit rollers, place and hold an alcohol-soaked swab on top of each roller while turning the individual roller with your thumb and forefinger.

6. To clean the two sets of ribbed exit guides on the underside of the exit cover, gently wipe the raised ribs using an alcohol-soaked swab.



Cleaning the exit guides

Caution *To avoid damaging the print drum and exit guide, never scrape excess ink with a tool or finger nail. Use only the materials provided with the cleaning kit.*

7. Close the exit cover and the front cover.
8. If the ribbed guides on top of the printer (the output tray) require cleaning, use an alcohol-soaked wipe.

Vacuum

Vacuum dust from the top cover, metal dust cover and plastic dust cover under the stripper fingers.

Drum temperature sensor

With a dry swap, clean any buildup around the drum temperature sensor. You can access the sensor through the opened stripper finger cover. Also make sure the sensor rides evenly on the drum surface.

Resetting NVRAM

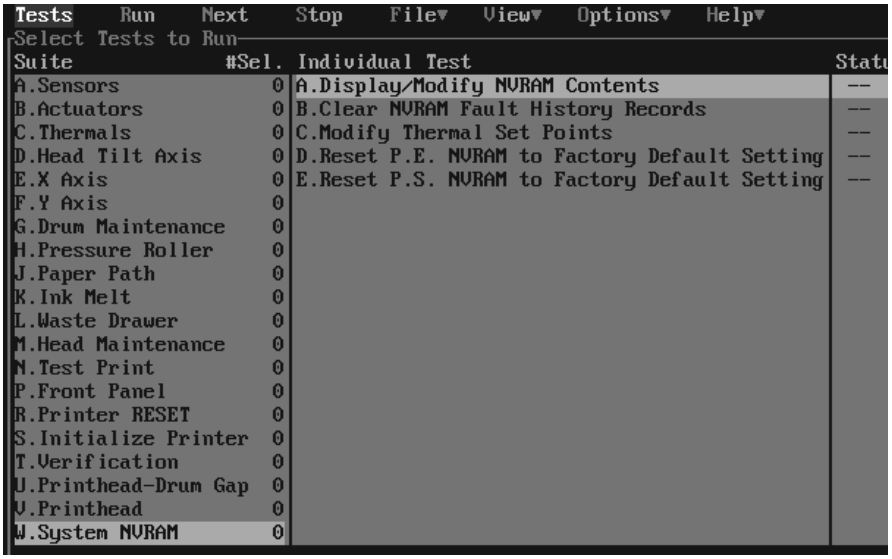
Resetting NVRAM returns *all* the image processor's NVRAM-stored parameters to their factory defaults except the print count (for images processed through the image processor) and the Adobe firmware serial number. If you do not wish to reset the NVRAM-stored parameters of an installed PhaserShare™ card, then remove the card before performing this procedure.

Caution *When servicing the printer, before turning on the printer, you should **always** make sure that the head tilt cam gear is latched by the head tilt solenoid and that the head tilt cam gear is disengaged (via its missing teeth) to the drive gear.*

To reset the printer to its factory-default values, follow this procedure:

1. With the printer in its Ready state, press **Menu**.
2. Scroll to the `Service Support` menu item.
3. Press **Menu** and **Exit** to enter the special service menu.
4. Scroll to the menu item `Reset NVRAM`.
5. Press **OK** to reset NVRAM.

Alternately, you can also use the PC diagnostics to selectively return either the print engine NVRAM contents or the PostScript NVRAM contents to their factory default values as shown in the following illustration


Tests Run Next Stop File▾ View▾ Options▾ Help▾
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Suite #Sel. Individual Test Statu
A.Sensors 0 A.Display/Modify NVRAM Contents --
B.Actuators 0 B.Clear NVRAM Fault History Records --
C.Thermals 0 C.Modify Thermal Set Points --
D.Head Tilt Axis 0 D.Reset P.E. NVRAM to Factory Default Setting --
E.X Axis 0 E.Reset P.S. NVRAM to Factory Default Setting --
F.Y Axis 0
G.Drum Maintenance 0
H.Pressure Roller 0
J.Paper Path 0
K.Ink Melt 0
L.Waste Drawer 0
M.Head Maintenance 0
N.Test Print 0
P.Front Panel 0
R.Printer RESET 0
S.Initialize Printer 0
T.Verification 0
U.Printhead-Drum Gap 0
V.Printhead 0
W.System NVRAM 0

NVRAM Test menu

FRU List

Changes to Tektronix products are made to accommodate improved components as they become available. It is important when ordering parts to include the following information:

- Component's part number
- Product type or model number
- Serial number of the printer

Serial numbering. Particular fields in the serial number indicate the modification level of the printer, the date of its manufacture and the sequence number of the printer produced on that day. The serial number is coded as follows: B*LxxDMY*

B indicates the headquarter city of the manufacturing company, Beaverton.

L indicates the revision level of the printer, ranging alpha-numerically from 0 to Z. Printer ranging from B0*xxxxx to* BB*xxxxx* may be referred to as Version 1 printers. Printer serial-numbered BC*xxxxx* and above are referred to as Version 2 printers.

xx alpha-numerically indicates the sequence of the printer among the printers produce on that day of manufacture, ranging from 01 to ZZ representing
1 to 1296 (the letters I and O are not used).

D alpha-numerically indicates the day of manufacture, ranging from 1 to X representing 1 to 31 (the letters I and O are not used).

M alpha-numerically indicates the month of manufacture, ranging from 1 to C representing 1 to 12.

Y numerically indicates the last digit of the year of manufacture, ranging from 0 to 9.

New serial numbering. Printers since April 1996 use the simpler format: B*YL*xxxx.

Y numerically indicates the last digit of the year of manufacture, ranging from 0 to 9.

L indicates the revision level of the printer, ranging alpha-numerically from 0 thru 9 to A thru Z.

xxxx indicates the serial sequence of manufacture

New format serial numbering begins with B6Exxxx which follows old-style number BExxxxx.

Table 1 Phaser 340 FRU exterior parts list

Fig 1 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
1	200-4223-02			1	Cover, Front Jam Access
2	200-4224-00			1	Cover, Stripper Access
3	200-4225-01			1	Cover, Top
4	200-4187-01			1	Cover Side, Right
5	200-4274-00			1	Cover Side, Left
6	200-4189-00			1	Cover, Back
7	367-0454-00			1	Handle, Release Lever
8	214-4639-00			2	Pivot Hinge, Front Cover
9	200-4220-00			1	Cap, Head Restraint
	334-8366-25			1	Logo Marker, Z340/Z340P
	334-8366-29			1	Logo Marker, Z340J

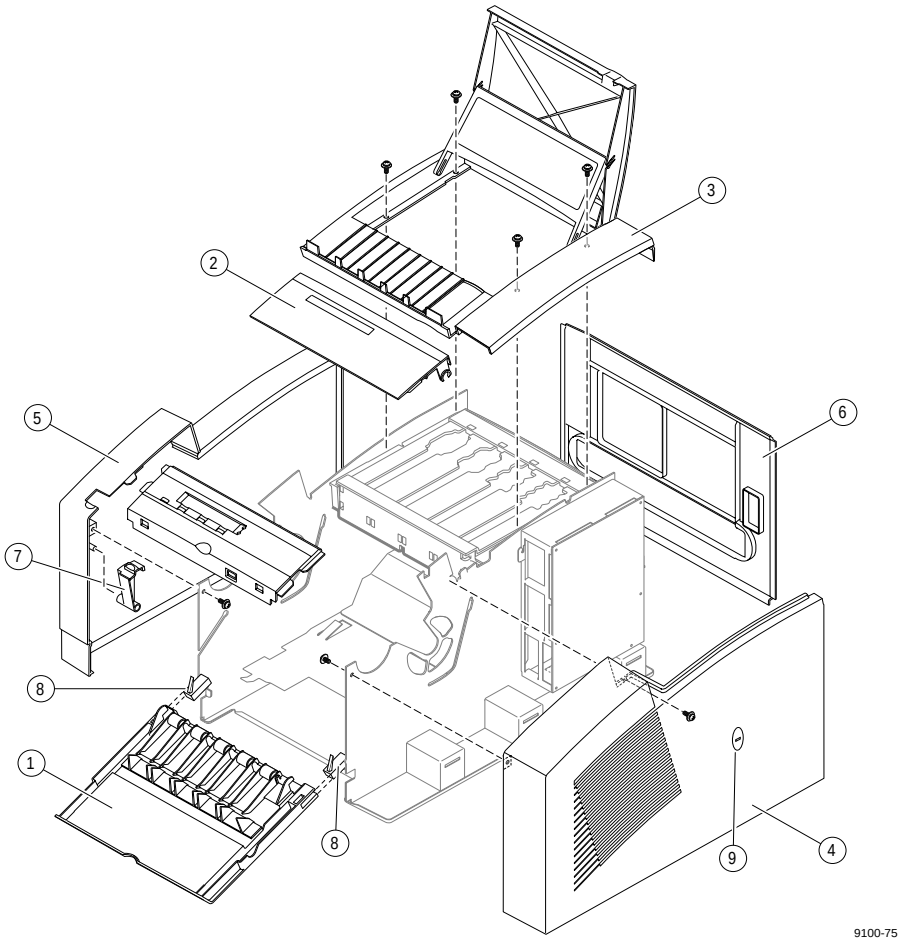

Figure 1 The Phaser 340 printer exterior FRUs

Table 2 Phaser 340 FRU interior parts list

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty.	Name and description
	650-3260-00 650-3184-00	B0*xxxxx* BC*xxxxx*	BB*xxxxx*		Print engine w/o Main Board and SIMMs
1	386-6851-00			1	Finger, Stripper, Upper, Assembly
2	650-3426-00			1	Finger, Stripper, Lower, Assembly
3	119-5237-00			1	Drum Temperature Sensor Assembly
4	650-3428-00			1	Drum/Transfix Assembly
5a, b	650-3299-00			1	Exit Roller and Lower Feed Roller
6	351-0959-00			1	Guide, Exit, Lower
7	650-3257-00			1	Front Panel Assembly
8a 8b	650-3258-01 650-3185-00	B0*xxxxx* BC*xxxxx*	BB*xxxxx*	1	Cap/Wipe/Purge Assembly Cap/Wipe/Purge Assembly, PTC-regulate
9	650-3153-00			1	Printhead and Install Kit
10	166-0704-00			1	Rigid Vacuum Tube
11	650-3362-03			1	Ink Loader
12	650-3461-00			1	Head Ribbon Cable and Clip
13	671-3038-06			1	Circuit Board, Power Control
14	162-0474-00			1	Tube
15	671-3331-50			1	Circuit Board, Interconnect
16	119-4894-00			1	Fan, Rear
17a 17b 17c 17d 17e	671-3565-00 671-3641-00 671-3594-00 671-3809-00 671-3811-00	B0*xxxxx* B0*xxxxx* B0*xxxxx* BC*xxxxx* BC*xxxxx*	BB*xxxxx* BB*xxxxx* BB*xxxxx*	1	Masked PS ROM SIMM, Z340 Masked PS ROM SIMM,Z340P Masked PS ROM SIMM, Z340J "Kanji" Masked PS ROM SIMM, Z340/Z340P Masked PS ROM SIMM, Z340J "Kanji"
18a 18b	671-1561-01 671-3133-00			1	4 Mbyte RAM SIMM, Z340 16 Mbyte RAM SIMM, Z340 Plus
19a 19b	671-3037-80 671-3760-80	B0*xxxxx* BD*xxxxx*	BCxxxxx	1	Circuit Board, Main, Z340/Z340P Circuit Board, Main, Z340/Z340P (not available until Apr 1, 1996)
20a 20b 20c 20d 20e	671-3468-02 671-3469-00 671-3470-02 386-6815-00 213-1090-00			1 1 1 1 2	Network card, Ethernet, 4676FP1 Network card, LocalTalk/Serial, 4676FP3 Network card, Token Ring, 4676FP4 Blank cover plate (no card installed) Blank cover plate thumbscrews
21 21a 21b	650-3365-01 159-0047-00 159-0352-00			1 1 4	Power Supply Fuse, 10A slow, F4 Fuse, 6.3A, DIN, F1, F2, F3, F5
22	650-3261-00			1	Motor, Stepper, Cap/Wipe/Purge Assembly, includes items 23 and 24

Table 2 Phaser 340 FRU interior parts list (cont'd.)

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty.	Name and description
23				2	Belt, Cap/Wipe/Purge Drive - part of 650-3268-00 belt kit
24				1	Drive Gear - part of 650-3296-00 kit
25	650-3266-00			1	Solenoid Valve Assembly.
26	343-1580-00			1	Restraint, Printhead Shipping Assembly
27	174-3402-00			1	Cable, Power Supply
28	650-3363-00			1	Circuit Board, I/O 3
29	650-3262-00			1	Exit Gear Assembly
30	119-4893-00			1	Fan, Drum Cooling
31a 31b	650-3259-00 650-3186-00	B0*xxxxx* BC*xxxxx*	BB*xxxxx*	1	X-Axis Drive Assembly X-Axis Drive Assembly
32	119-4822-00			1	Sensor, Head Restraint
33	401-0732-00			1	Drum Ring Gear
34	650-3263-00			1	Y-Axis Pulley Assembly / with Belts
35	671-3192-52			1	Circuit Board, I/O 2
36	351-0972-00			1	Guide, Paper Tray, Right
37	214-4651-00			2	Drum Maintenance Tray Actuator, Left/Right
38	351-0963-01			1	Guide, Nose, Right
39	351-0969-00			1	Guide, Pick Assembly
40	351-0951-00			1	Guide, Paper Tray, Left
41	343-1566-00			1	Assembly, Spring/Retainer
42	351-0957-00			1	Guide, Nose, Left
43	351-0991-00			1	Guide Drawer Assembly, Right
44	351-0971-02			1	Guide Drawer Assembly, Left
45	401-0701-00			1	Roller, Pick Assembly
46	650-3163-02 650-3182-00 650-3183-00	B0*xxxxx* BC*xxxxx* BC*xxxxx*	BB*xxxxx*	1	Engine FW ROM, Z340, Z340P, V1.24 Engine FW ROM, Z340, "Base", V2.40 Engine FW ROM, Z340P, "Plus", V2.40
47	386-6902-00			3	Tray Sense Buttons
48	671-3198-50			1	Paper Preheater Exit Sensor
49	119-4720-00			1	Paper Preheater Assembly with Upper Feed Roller
50	174-3398-00			1	Cable, I/O board 4 to I/O Board 3
51	174-3399-00			1	Cable, I/O Board 4 to Front Panel

Table 2 Phaser 340 FRU interior parts list (cont'd.)

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty.	Name and description
52	650-3364-00			1	Drum Heater Assembly
53	147-0108-00			1	Process Motor
54	147-0109-01			1	Y-axis Drive Motor
55	671-3191-53			1	Circuit Board, I/O 1
56	202-0342-01			1	Accumulator
57	156-4001-00			1	NVRAM IC for Main Board
	650-3269-00				Hardware Kit
	650-3267-00				Bushing Kit
	650-3268-00				Belt Kit Belt, Paper Path Transport Belt, Paper Transport Belt, Drum Y-Axis Belt, Motor Y-Axis Belt, Cap/Wipe/Purge Drive, 2 per kit
	650-3289-00				Flag Kit Latch, Flag Flag, Exit Sensor Flag, Paper Out, Sense Flag, Hand Feed Flag, Paper-pick Flag, Paper Tray Sense Flag, Preheat Entrance Flag, A Flag, A-4 Flag, Exit Sensor Flag, Advance Gear / Home
	650-3296-00				Gear Kit Pulley, Lower, Paper Transport Gear, Compound, Paper Transport Gear, Drum Maint Lower Idler Gear, Paper Path Idler Gear, Shaft, Eccentric Gear, Compound, Shaft, Eccentric Gear, #13 Gear, #14 Pulley, Gear, Compound Pulley, Idler Pulley, Left Drive Roller, Maintenance Drive Belt Assembly Gear, Exit Roller Gear, Exit, Drum Pulley Gear, Exit, Idler Gear, DM, First Stage Gear, DM, Second Stage Gear, DM, Third Stage Gear, DM, Idle

Table 2 Phaser 340 FRU interior parts list (cont'd.)

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty.	Name and description
	650-3298-00				Spring Kit Spring, Head Tilt Spring, Exit Disengage Spring, Belt Tensioner, Left Spring, Paper Tray Flag Spring, Drum Maintenance, Pivot Spring, Actuator Return, Jam Access Spring, Motor Mount, Right
	650-3299-00				Shaft Roller Kit Roller, Exit Roller, Lower Transport Cam, Drum Maintenance

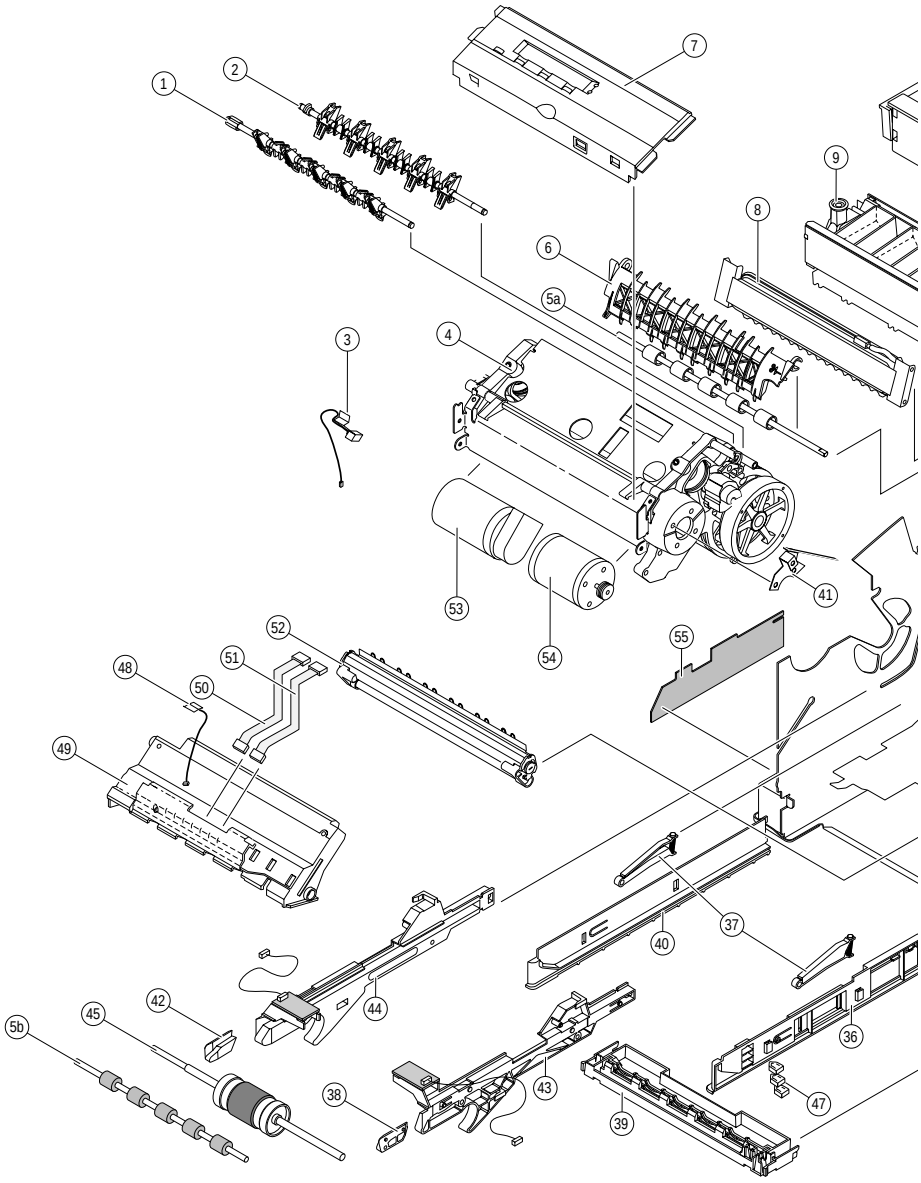

Figure 2 The Phaser 340 printer interior FRUs

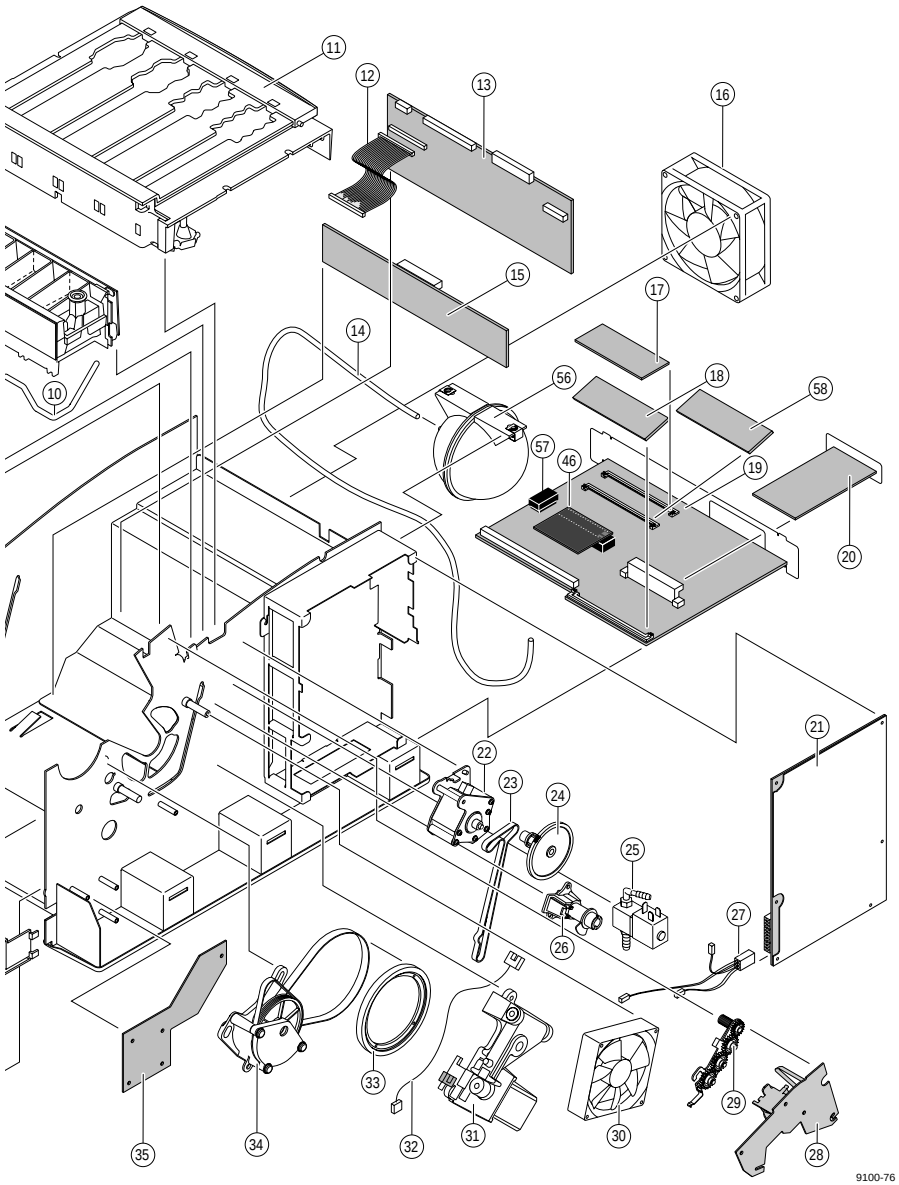
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Table 3 Phaser 340 FRU interior part list (left side)

Fig 3 parts	Part number	Serial number Effective	Discnt'd	Qty	Name and description
1	650-3430-00			1	Vacuum Pump Assembly
2				2	Belt, Cap/Wipe/Purge Drive, 2 Per - part of 650-3268-00 Belt Kit
3	650-3264-00			1	Position Sensing Assembly
4				1	Gear, Compound, Eccentric - part of 650-3296-00 Kit
5	119-4968-00			1	Process Gear Position Sensor
6				1	Belt, Paper Transport - part of 650-3268-00 Belt Kit
7	401-0708-00			1	Clutch, Electric, Paper Transport
8	401-0706-01			1	Gear, Compound, Paper Path Assembly
9	401-0709-01			1	Clutch, Paper Pick
10	401-0710-00			1	Clutch, Drum Maintenance Cam Shaft
11				1	Belt, Paper Path Transport - part of 650-3268-00 Belt Kit
12a 12b	401-0733-01 401-0751-00	B0*xxxxx* BC*xxxxx*	BB*xxxxx*	1	Head Tilt Cam Gear

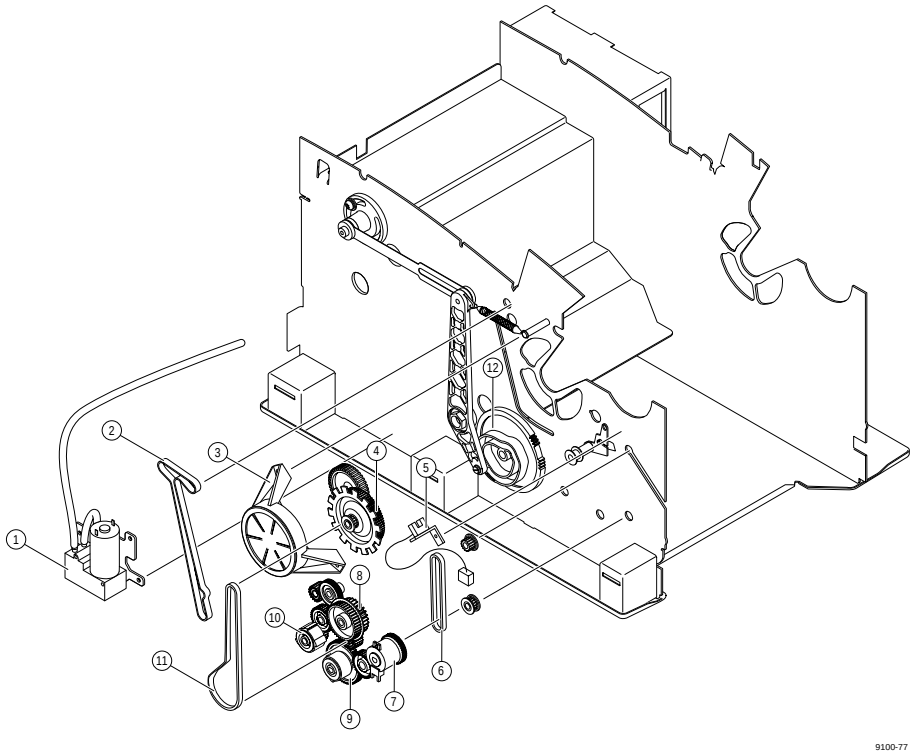


Figure 3 The Phaser 340 printer interior FRUs (left side)

Phaser 350 Field Replaceable Units List

Phaser 350 FRU exterior parts list

Fig 1 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
1	200-4223-02			1	Cover, Front Jam Access
2	200-4224-02			1	Cover, Stripper Access
3	200-4225-01			1	Cover, Top
4	200-4187-01			1	Cover Side, Right
5	200-4274-00			1	Cover Side, Left
6	200-4189-00			1	Cover, Back
7	367-0454-00			1	Handle, Release Lever
8	214-4639-00			2	Pivot Hinge, Front Cover
9	200-4220-00			1	Cap, Head Restraint
	334-8356-34				Logo Marker, Z350

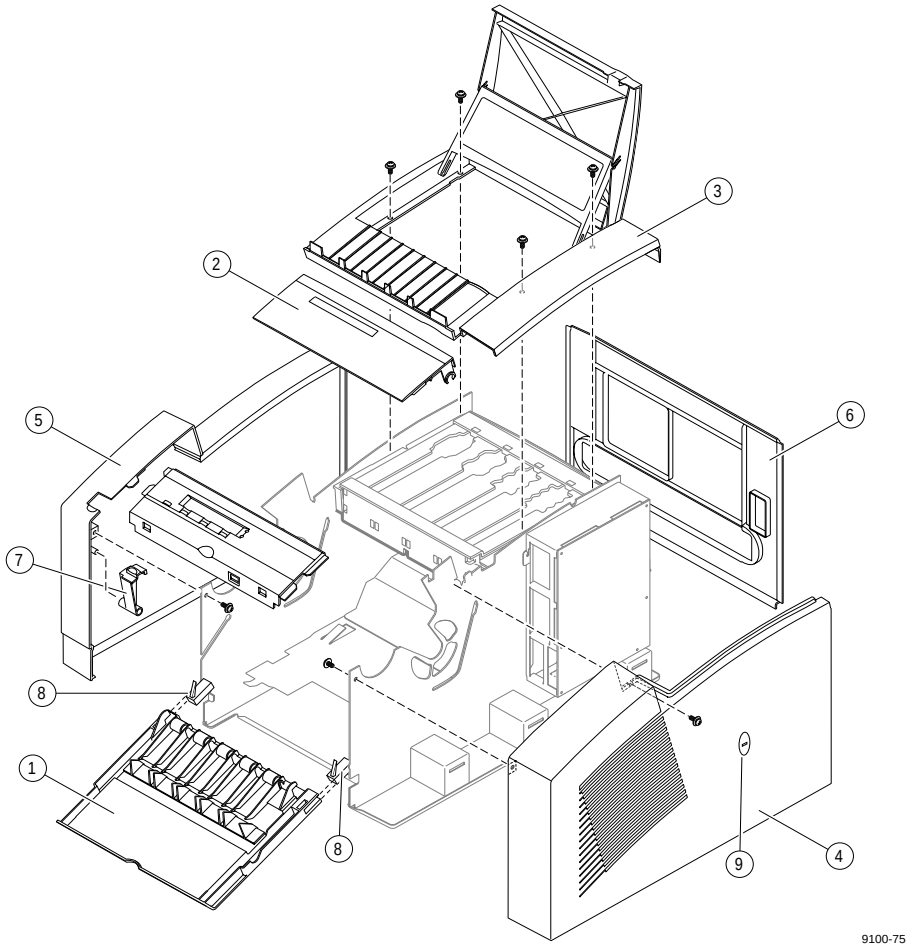


Figure 4 The Phaser 350 printer exterior FRUs

Phaser 350 FRU interior parts list

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
	650-3184-01				Print engine w/o Main Board and SIMMs
1	386-6851-00			1	Finger, Stripper, Upper, Assembly
2	650-3426-00			1	Finger, Stripper, Lower, Kit
3	119-5237-00			1	Drum Temperature Sensor Assembly
4	650-3428-00			1	Drum/Transfix Assembly
5a, b	650-3299-00			1	Exit Roller and Lower Feed Roller
6	351-0959-00			1	Guide, Exit, Lower
7	650-3257-00			1	Front Panel Assembly
8	650-3185-00			1	Cap/Wipe/Purge Assembly, PTC-regulate
9	650-3153-00			1	Printhead and Install Kit
10	166-0704-00			1	Rigid Vacuum Tube
11	650-3362-03			1	Ink Loader
12	650-3461-00			1	Head Ribbon Cable and Clip
13	671-3038-06			1	Circuit Board, Power Control
14	162-0474-00			1	Tube
15	671-3331-50			1	Circuit Board, Interconnect
16	119-4894-00			1	Fan, Rear
17	671-3940-00 671-3688-01			1	PS ROM SIMM, Z350 (masked) PS ROM SIMM, Z350J "Kanji" (masked)
18	671-3133-00			1	16 MByte RAM SIMM
19	671-3760-80 671-3897-80			1	Circuit Board, Main, P350 Circuit board, Main, P350 Kanji (no FW installed on these boards)
20a 20b 20c 20d 20e	671-3468-03 671-3469-00 671-3470-03 386-6815-00 213-1090-00			1 1 1 1 2	Network card, Ethernet, 4676FP1 Network card, LocalTalk/Serial, 4676FP3 Network card, TokenRing, 4676FP4 Blank cover plate (no card installed) Blank cover plate thumbscrews
21 21a 21b	650-3365-01 159-0047-00 159-0352-00			1 1 4	Power Supply Fuse, 10A slow, F4 Fuse, 6.3A, DIN, F1, F2, F3, F5
22	650-3261-00			1	Motor, Stepper, Cap/Wipe/Purge Assembly, includes items 23 and 24
23				2	Belt, Cap/Wipe/Purge Drive - part of 650-3268-00 belt kit
24				1	Drive Gear - part of 650-3296-00 kit

Phaser 350 FRU interior parts list

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
25	650-3266-00			1	Solenoid Valve Assembly.
26	343-1580-00			1	Restraint, Printhead Shipping Assembly
27	174-3402-00			1	Cable, Power Supply
28	650-3363-00			1	Circuit Board, I/O 3
29	650-3262-00			1	Exit Gear Assembly
30	119-4893-00			1	Fan, Drum Cooling
31	650-3186-00			1	X-Axis Drive Assembly
32	119-4822-00			1	Sensor, Head Restraint
33	401-0732-00			1	Drum Ring Gear
34	650-3263-00			1	Y-Axis Pulley Assembly / with Belts
35	671-3192-52			1	Circuit Board, I/O 2
36	351-0972-00			1	Guide, Paper Tray, Right
37	214-4651-00			2	Drum Maintenance Tray Actuator, Left/Right
38	351-0963-01			1	Guide, Nose, Right
39	351-0969-00			1	Guide, Pick Assembly
40	351-0951-00			1	Guide, Paper Tray, Left
41	343-1566-00			1	Assembly, Spring/Retainer
42	351-0957-00			1	Guide, Nose, Left
43	351-0991-00			1	Guide Drawer Assembly, Right
44	351-0971-02			1	Guide Drawer Assembly, Left
45	401-0701-00			1	Roller, Pick Assembly
46	163-0821-00 163-0822-00			1	Engine ROM, Z350 Base (masked) Engine ROM, Z350 Extended (masked)
47	386-6902-00			3	Tray Sense Buttons
48	671-3198-50			1	Paper Preheater Exit Sensor
49	119-4720-00			1	Paper Preheater Assembly with Upper Feed Roller
50	174-3398-00			1	Cable, I/O board 4 to I/O Board 3
51	174-3399-00			1	Cable, I/O Board 4 to Front Panel
52	650-3364-00			1	Drum Heater Assembly
53	147-0108-00			1	Process Motor
54	147-0109-01			1	Y-axis Drive Motor

Phaser 350 FRU interior parts list

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
55	671-3191-53			1	Circuit Board, I/O 1
56	202-0342-01			1	Accumulator
57	156-4001-00			1	NVRAM IC for Main Board
58	671-3997-00				Kanji Font ROM (optional)
	650-3269-00				Hardware Kit
	650-3267-00				Bushing Kit
	650-3268-00				Belt Kit Belt, Paper Path Transport Belt, Paper Transport Belt, Drum Y-Axis Belt, Motor Y-Axis Belt, Cap/Wipe/Purge Drive, 2 per kit
	650-3289-00				Flag Kit Latch, Flag Flag, Exit Sensor Flag, Paper Out, Sense Flag, Hand Feed Flag, Paper-pick Flag, Paper Tray Sense Flag, Preheat Entrance Flag, A Flag, A-4 Flag, Exit Sensor Flag, Advance Gear / Home
	650-3296-00				Gear Kit Pulley, Lower, Paper Transport Gear, Compound, Paper Transport Gear, Drum Maint Lower Idler Gear, Paper Path Idler Gear, Shaft, Eccentric Gear, Compound, Shaft, Eccentric Gear, #13 Gear, #14 Pulley, Gear, Compound Pulley, Idler Pulley, Left Drive Roller, Maintenance Drive Belt Assembly Gear, Exit Roller Gear, Exit, Drum Pulley Gear, Exit, Idler Gear, DM, First Stage Gear, DM, Second Stage Gear, DM, Third Stage Gear, DM, Idle

Phaser 350 FRU interior parts list

Fig 2 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
	650-3298-00				Spring Kit Spring, Head Tilt Spring, Exit Disengage Spring, Belt Tensioner, Left Spring, Paper Tray Flag Spring, Drum Maintenance, Pivot Spring, Actuator Return, Jam Access Spring, Motor Mount, Right
	650-3299-00				Shaft Roller Kit Roller, Exit Roller, Lower Transport Cam, Drum Maintenance

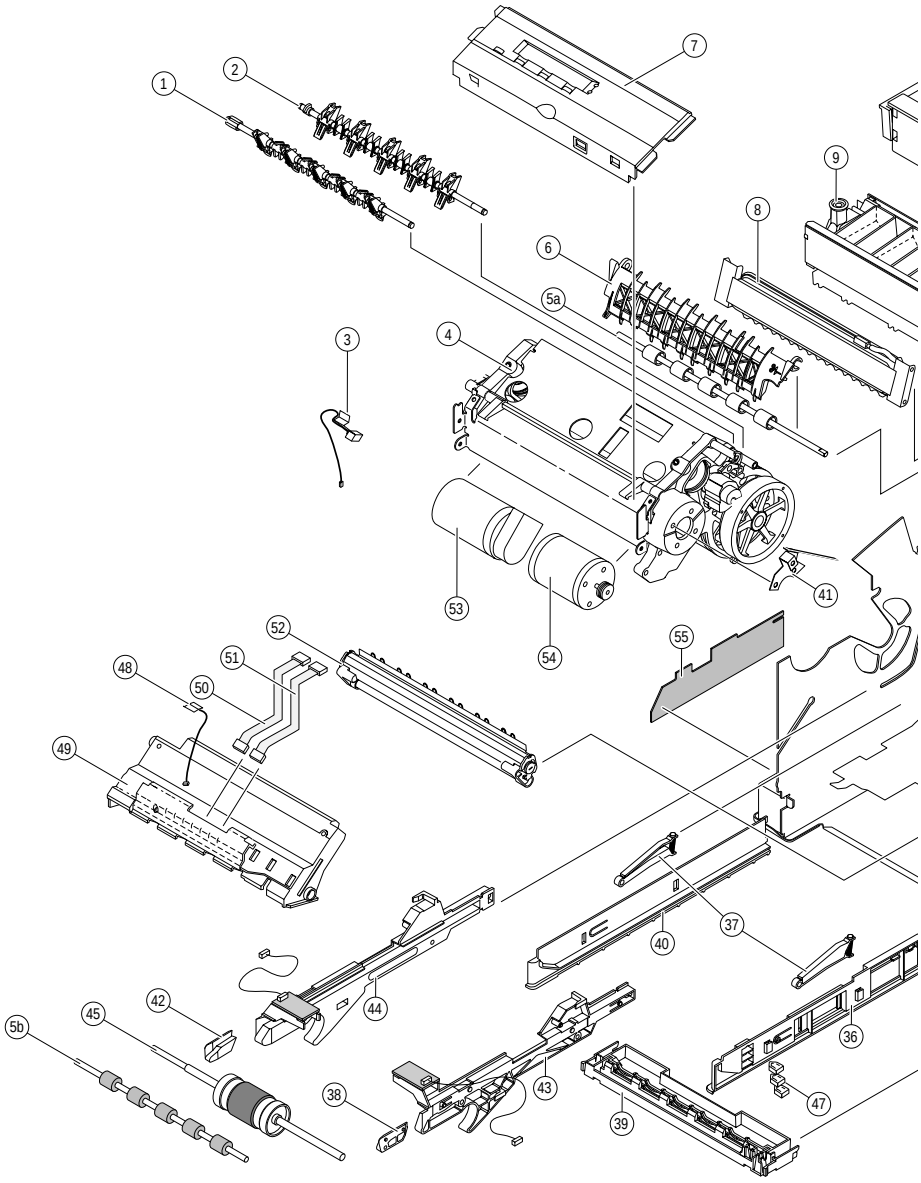
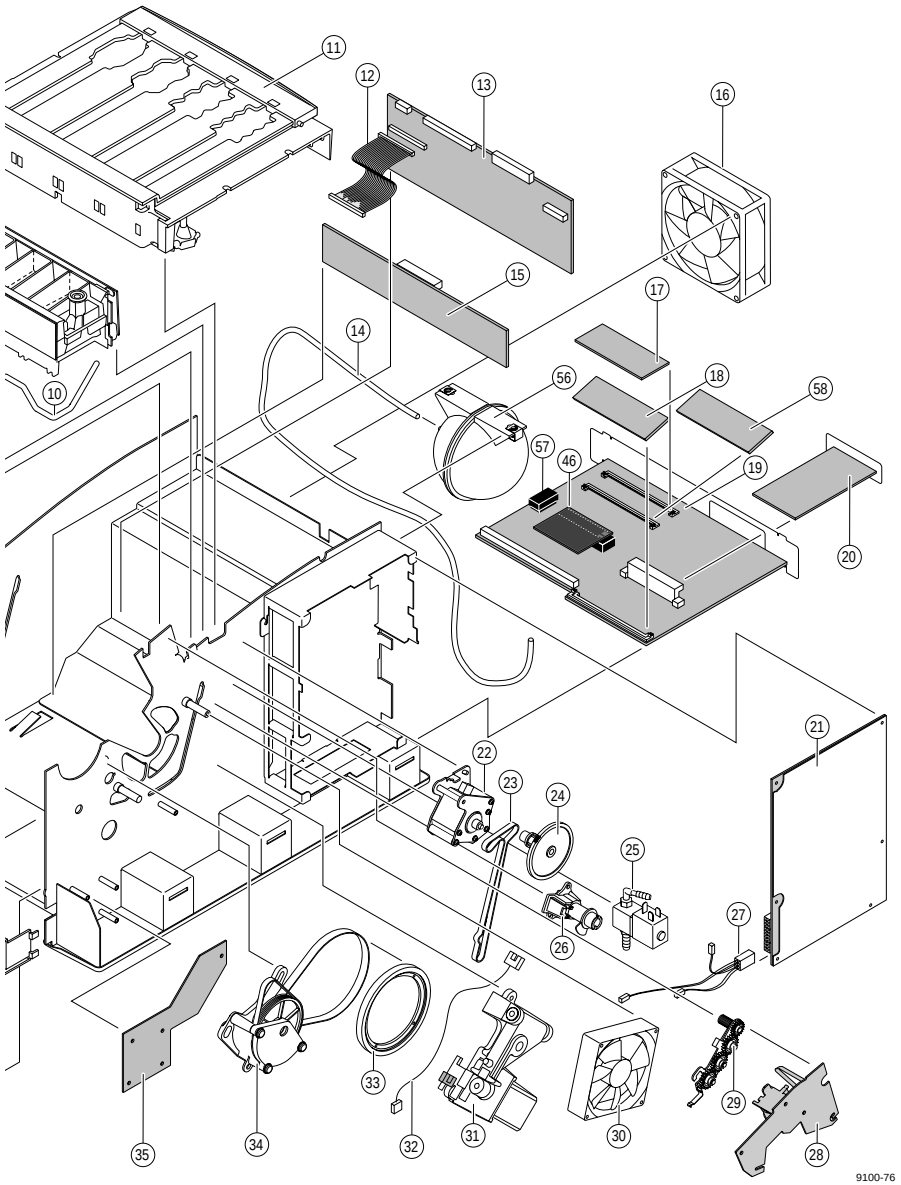


Figure 5 The Phaser 350 printer interior FRUs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9100-76

Phaser 350 FRU interior part list (left side)

Fig 3 parts	Part number	Serial number Effective	Discont'd	Qty	Name and description
1	650-3430-00			1	Vacuum Pump Assembly
2				2	Belt, Cap/Wipe/Purge Drive, 2 Per - part of 650-3268-00 Belt Kit
3	650-3264-00			1	Position Sensing Assembly
4				1	Gear, Compound, Eccentric - part of 650-3296-00 Kit
5	119-4968-00			1	Compound Gear Position Sensor
6				1	Belt, Paper Transport - part of 650-3268-00 Belt Kit
7	401-0708-00			1	Clutch, Electric, Paper Transport
8	401-0706-01			1	Gear, Compound, Paper Path Assembly
9	401-0709-01			1	Clutch, Paper Pick
10	401-0710-00			1	Clutch, Drum Maintenance Cam Shaft
11				1	Belt, Paper Path Transport - part of 650-3268-00 Belt Kit
12	401-0751-00			1	Head Tilt Cam Gear

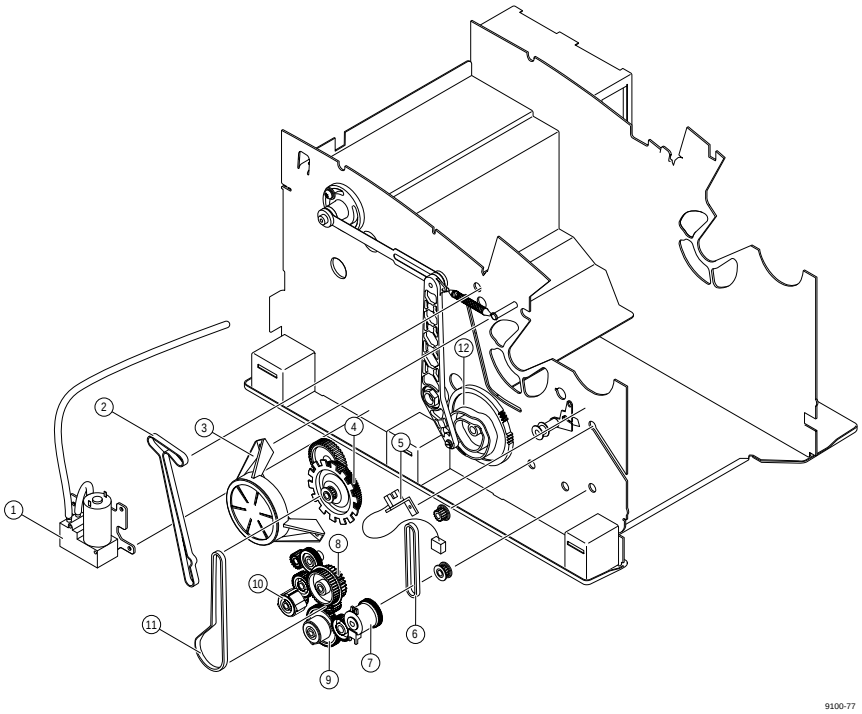


Figure 6 The Phaser 350 printer interior FRUs (left side)

Supplies and Accessories

Table 4 Supplies and accessories

	Part number	Serial number Effective	Discnt'd	Qty	Name and description
Supply	016-1341-00				Cleaning Kit
Supply	436-0293-01			1	Tray, Paper (A) Letter US, Standard
Supply	436-0292-01			1	Tray, Paper (A4) Metric, Standard
	105-1058-01			1	Tray paper backstop
	214-4595-00			5	Tray type sense keys
Supply	436-0301-00			1	Tray, Transparency (A) US
Supply	436-0302-01			1	Tray, Transparency (A4) Metric
Supply	348-1373-00			1	Paper Separator Pad For Std Tray
Supply	436-0294-03			1	Cartridge, Drum Maintenance

Table 4 Supplies and accessories (cont'd.)

	Part number	Serial number Effective	Discnt'd	Qty	Name and description
Supply	436-0299-00			1	Tray, Waste Ink
Supply	016-1307-00				Black ColorStix (3 per box)
Supply	016-1308-00				Cyan ColorStix (3 per box)
Supply	016-1309-00				Magenta ColorStix (3 per box)
Supply	016-1310-00				Yellow ColorStix (3 per box)
Supply	016-1359-00				Transparency Film, A-size, Std, 50 sheets
Supply	016-1360-00				Transparency Film, A4-size, Std, 50 sheets
Supply	016-1361-00				Transparency Film, A-size, Prem, 50 sheets
Supply	016-1362-00				Transparency Film, A4-size, Prem, 50 sheet
	070-9099-01				Phaser 340 Printer Tools Reference Manual
	070-9101-03				Phaser 340 User Manual, English
	070-9101-12				Phaser 340 User Manual, French
	070-9101-22				Phaser 340 User Manual, Italian
	070-9101-32				Phaser 340 Users Manual, German
	070-9101-42				Phaser 340 Users Manual, Spanish
	070-9109-01				Phaser 340 PhaserShare Networking and Printer Management SW Manual
	063-2278-01				Phaser 340 SW Drivers and Utilities Diskettes
	063-2491-01				Phaser 340 SW Drivers and Utilities CD
	070-9100-01				Service Manual
	070-9682-00				Phaser 350 Users Manual, English
	070-9682-10				Phaser 350 Users Manual, French
	070-9682-20				Phaser 350 Users Manual, Italian
	070-9682-30				Phaser 350 Users Manual, German
	070-9682-40				Phaser 350 Users Manual, Spanish
	070-9538-01				Phaser 350 PhaserShare Networking and Printer Management SW Manual
	063-2546-00				Phaser 350 SW Drivers and Utilities Diskettes

Table 4 Supplies and accessories (cont'd.)

	Part number	Serial number Effective	Discnt'd	Qty	Name and description
	063-2550-00				Phaser 350 SW Drivers and Utilities CD, Z350 “Base”
	063-2543-00				Phaser 350 SW Drivers and Utilities CD, Z350 Ext Feat
	065-0550-00				Carton Kit, Shipping
	013-0299-00			1	Parallel adapter, Centronics 36-pin to IEEE-1284-C “mini”
	012-1468-00			1	Cable, Parallel IEEE-1284-C to DB25M
	012-1465-00			1	Cable, SCSI-2 to 50-pin SCSI
	012-1313-00			1	Cable, Serial, DB9F to DB25M
	012-1312-00			1	Cable, Serial, DB25F to DB25M
	161-0066-00				Power cord, Std., USA, Canada, 115 V,
	161-0066-09				Power cord, Option A1, Universal European, 220 V
	161-0066-10				Power cord, Option A2, United Kingdom, 240 V
	161-0066-11				Power cord, Option A3, Australia, 240 V
	161-0154-00				Power cord, Option A5, Switzerland, 220 V

Tools and Upgrade Kits

Table 5 Service tools and upgrade kits

	Part number	Serial number Effective	Discnt'd	Qty	Name and description
Service	174-3493-00			1	Cable, Serial Adapter, Diags, Level Shifter
Service	063-2295-06				Service PC-based Diagnostics SW Diskette, V1, V2 and V3
Service	012-1498-00				Cable, Mac, Serial DIN8 to DB25M
Service	650-3300-00				Tool Kit - which includes the following:
Service	003-1489-00			1	Tool, Alignment, Encoder disk
Service	003-1499-00			1	Tool, Gap, Head to Drum
Service	003-1500-00			1	Tool, Belt Tensioner, Y-Axis
Service	003-1503-00			1	Hot Head Handler
Service	003-1504-00			1	Hot Head Plug Assembly
Service	003-0827-00			1	Screwdriver, torque
Service	006-7824-01				Pack of 10 Alcohol Wipes
Service	174-3493-00			1	Cable, Serial Adapter, Diags, Level Shifter
Service	012-1498-00				Cable, Mac, Serial DIN8 to DB25M
Kit	Z350FP1				Ethernet Network Card Upgrade
Kit	Z350 FP3				LocalTalk/Serial Card Upgrade
Kit	Z350FP4				TokenRing Network Card Upgrade
Kit	Z350UP1				Version 2 Upgrade Kit for Ethernet Network Card
Kit	Z350UP4				Version 2 Upgrade Kit TokenRing Network Card
Kit	Z340LTA				Lower Paper Tray Assembly w /A-size Tray
Kit	Z340LTA, Opt 01				Lower Paper Tray Assembly w/ A4-size Tray
Kit	Z340ROM	B0xxxxx	BB*xxxxx*		Upgrade to Z340 Plus, requires 4685F16
Kit	Z340PL	B0xxxxx	BB*xxxxx*		Phaser 340 PhaserLink upgrade, requires 4676FP1 or 4676FP4 already installed.
Kit	Z340FX	B0xxxxx BC*xxxx*	BB*xxxxx*		Phaser 340 Extended features upgrade, Opt . 01 Extended features upgrade, Opt. 02

Table 5 Service tools and upgrade kits

	Part number	Serial number Effective	Discnt'd	Qty	Name and description
Svc Kit	650-3495-00	B1*xxxxx* BC*xxx26*	B9*xxxxx* BC2M636		Phaser 340 Stronger Exit Roller Spring Kit
Svc Kit	650-3163-02	B0xxxxx	B5*xxxxx*		Phaser 340 Version 1.24 Print Engine Firmware
Svc Kit	650-3397-00	B0xxxxx	B6*xxxxx*		Phaser 340 Power Supply Thermistor Replacement Kit
Kit	Z350FX				Phaser 350 Extended features ROM upgrade, includes 16 Mbyte RAM SIMM
Kit	Z350DSK				2 Gbyte External Hard Drive

Lower Paper Tray Assembly

Table 6 Lower Paper Tray Assembly FRUs

Figure A-4 parts	Part number	Serial number Effective	Discnt'd	Qty	Name and description
1	118-9588-00			1	Tray Backstop
2	118-9590-00			1	Printer Cable Assembly
3	118-9589-00			1	Roller Assembly
4	118-9591-00			1	Arm Assembly
Supply	436-0288-00			1	Tray, Paper. (A) US letter, For LPTA
Supply	436-0289-00			1	Tray, Paper, (A4) Metric, For LPTA
	436-0277-00			1	Lower Tray Assembly w/ Letter Tray
	436-0287-00			1	Lower Tray Assembly w/ A4 Tray

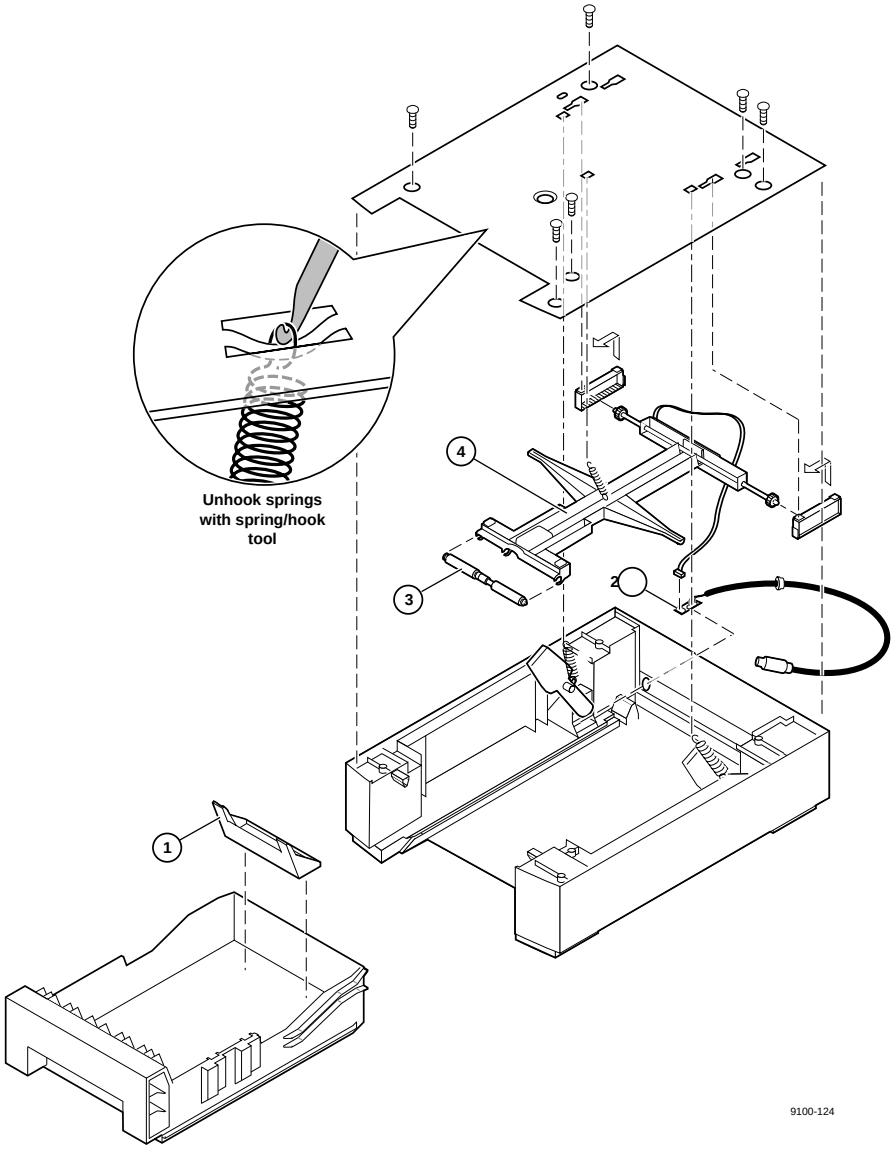


Figure 7 Lower Paper Tray Assembly FRUs

Test Patterns

This topic shows a number of defective prints and the reason for the defects. The test prints push the printer to the extremes of its performance to reveal possible shortcomings. Note that defects revealed by the prints may not show up at all in the course of ordinary printing. In servicing the printer, you should minimize the defects shown by the prints but not necessarily eliminate them.

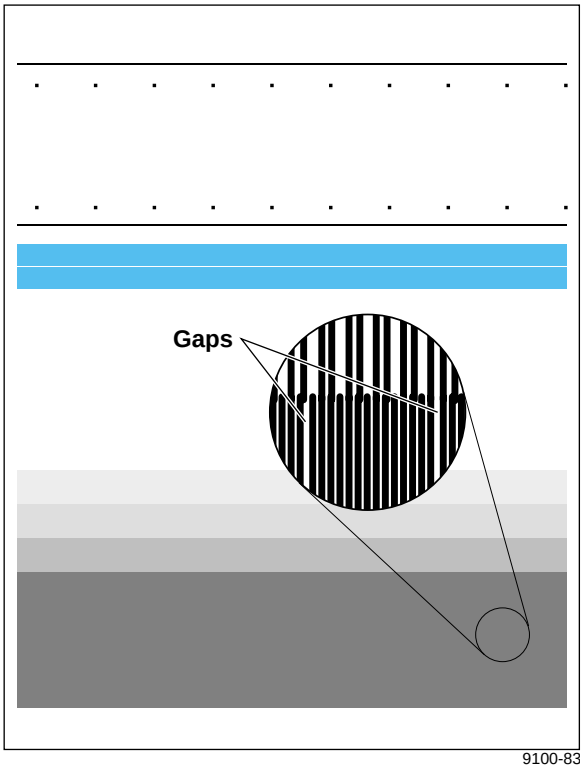
Test prints for Phaser 340 printers serial numbered B0xxxxx to BBxxxxx (Version 1 printers)

Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 1 - Jstep5**.** Printed in 600 dpi, this print reveals problems with the x-axis motion of the printhead.

Look for: Unusually wide white gaps or thick black lines between the thin, vertical black lines. The thin lines should be evenly spaced and consistent across the width of the page.

Causes: Gaps could either be caused by a defective x-axis drive or by something, such as a wiring harness interfering with the horizontal movement of the printhead. The ink loader, without the top cover installed to secure it in place, may rest too low and interfere with the printhead's motion. In this case the ink loader should rest on extrusions on the printer's side frames



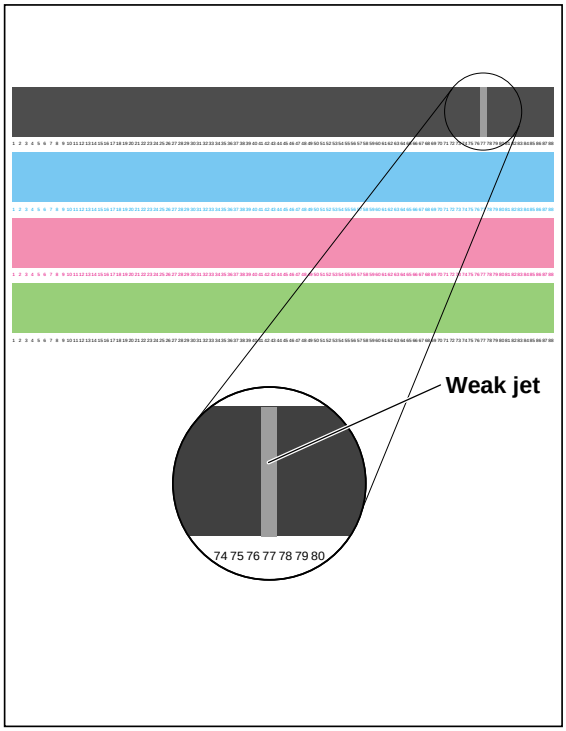
9100-83

Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 2 - Weak jet. This print shows which jets are not outputting enough, if any, ink compared to its neighboring jets. Note that the yellow jets bands have a small amount of cyan ink added to them, which tints them green, to make them more visible.

Look for: The large horizontal bars of primary colors in the prints should be consistently filled from left to right. Look for *much* lighter colored vertical bands in the horizontal bars. Weak jets in the yellow band are distinguished by a cyan tint.

Causes: A jet may be partially clogged; perform printhead clean/purge cycles on the printhead to remove contaminants from the poor performing jet. Turn the printer off for 2 to 3 hours (or overnight, if practical). Then perform clean/purge cycle again. As a last resort, replace the printhead.



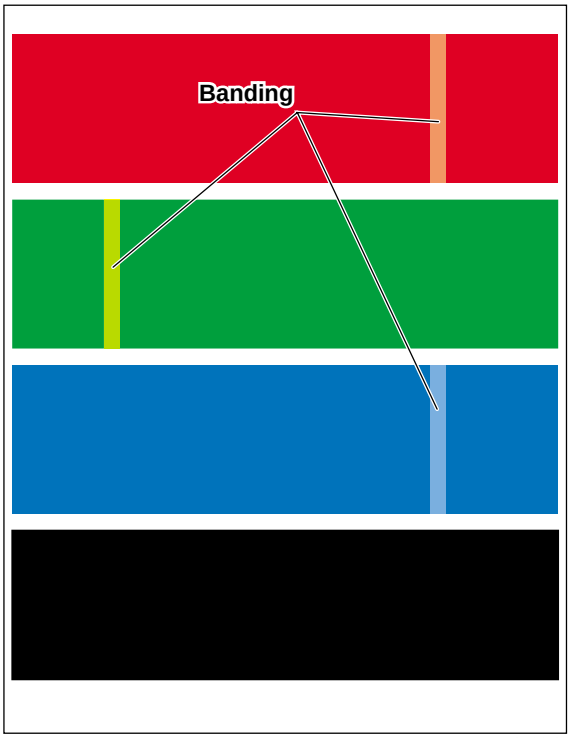
9100-84

Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 3 - Big bands. The large, secondary colored areas in this print reveal banding.

Look for: Vertical “bars” or bands of *much* lighter color or a different hue running in-line in one or more of the solid fills.

Causes: Banding is caused by color-to-color misregistration inherent in the fabrication of the jet. Ensure the printhead-to-spacing is correct. Then use the PC diagnostics to ensure that the printhead and drum thermals are correct. A weak jet can cause banding; refer to Test Print 2. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. As a last resort, replace the printhead.



9100-85

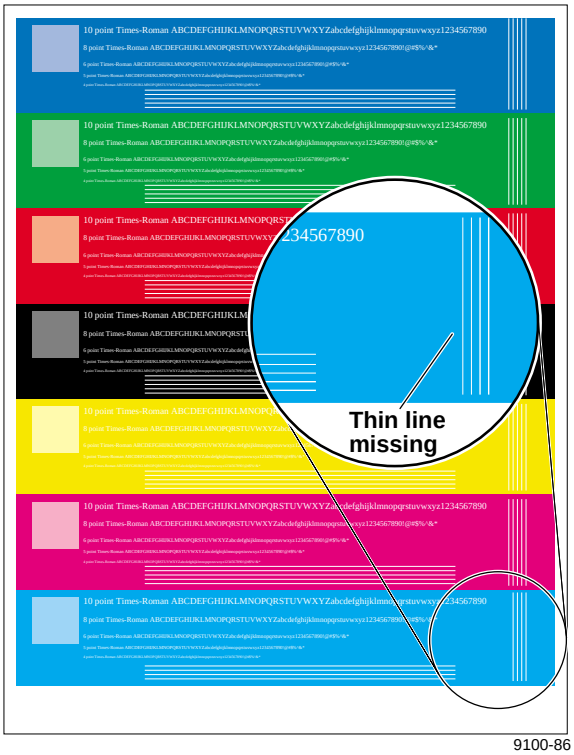
Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 4 - Reverse text. This print in 300 dpi indicates if the printhead is outputting properly-sized drops of ink and that the drum temperature is not too high.

Look for: Legibility in the lines of 6 point text; particularly in the primary colors. If the letters are closed or badly "plugged" with ink, the printhead is laying down to much ink. In a good print you should see **five** vertical parallel lines of different thicknesses. If the thinnest line is missing, the printhead is outputting too much ink or the drum temperature is too high.

Causes: Check the thermal regulation of the printhead and of the drum. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. As a last resort, replace the printhead.

This print should be made with the printer covers closed and in place. The heat loss without the covers can hide the "too-hot" thermal problem.



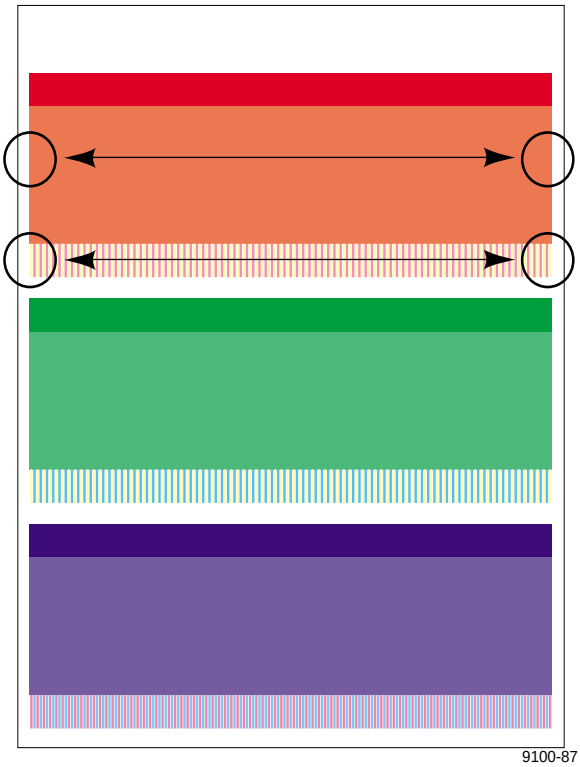
9100-86

Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 5 - Printhead position. This print reveals if the printhead is not square to the drum.

Look for: A shift in hue from the left to right end of the large fills. Also look for misconvergence in the left and right ends of the small, alternating colored vertical bands.

Causes: The ink drops from the jets are traveling in incorrect trajectories. The printhead is incorrectly mounted or its printhead-to-drum spacing is incorrect.



9100-87

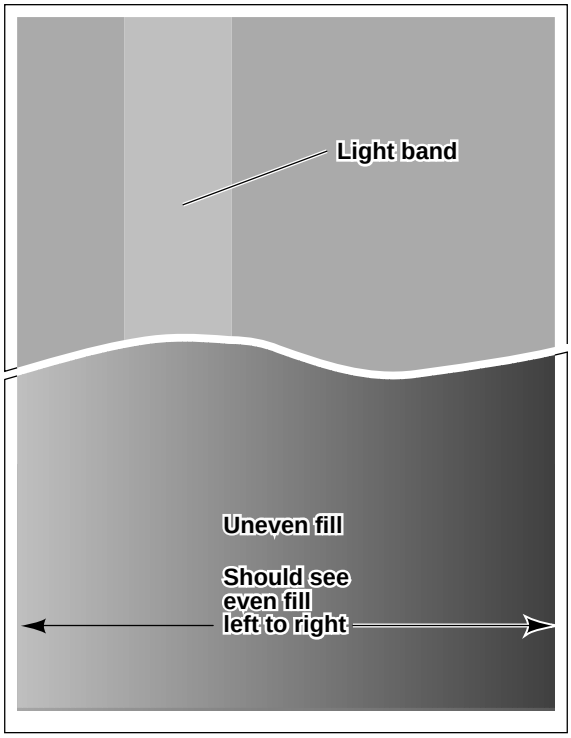
Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 6 - Black vertical lines. This print is made up of alternating vertical black and white lines. It reveals variations in the ink drop spread caused by thermal variations or transfix roller pressure variations or uneven oiling of the drum.

Look for: Large area of differences in the density across the width of the page. (A slight variation is normal.) Look for a lighter vertical band, about 1/5 the width of the page, running the length of the page. Also look for small light spots, vertically aligned with each other, in the print.

This pattern is sensitive to the density variations in the paper it is printed on. Use a high-quality grade of laser printer paper; otherwise, the print will appear mottled.

Causes: Use the PC diagnostics to check the printhead and drum for good thermal regulation. Also check the printhead-to-drum gap. Ensure the drum fan is running properly. A vertical band, 1/5 page wide, running the length of the page, are caused by a stuck heating plate in the paper preheater. Run the front panel cleaning procedure `Clean: Ink Smears` which raises the temperature of the paper preheater and may free the stuck heating plate. Additionally, you may manually force a thick sheet of paper (65 to 80 lb.) though the paper preheater to jar the plate free. Light spots are caused by a defective transfix roller with a weak, soft spot that is not pushing the ink into the paper as the rest of the roller does. In this case, replace the drum/transfix unit. Replace the drum maintenance tray; particularly if you observe variations in the glossiness of the print.



9100-88

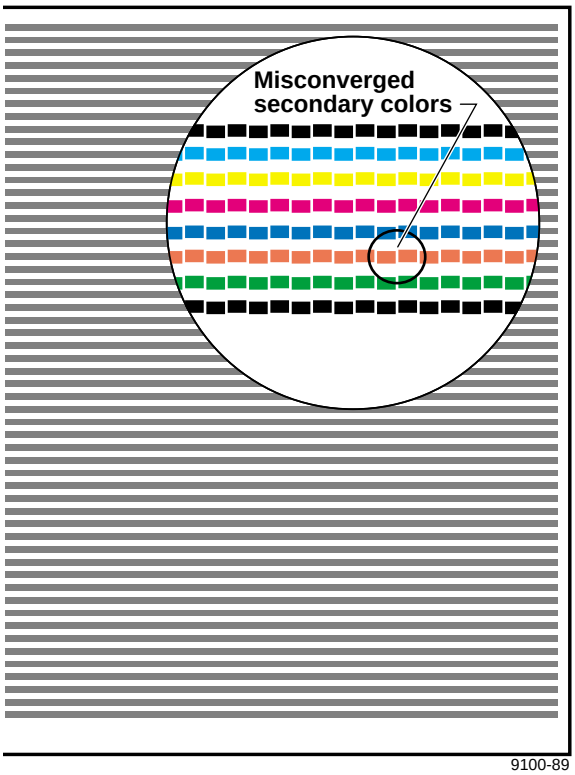
Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 7 - Horizontal lines. This print consists of horizontal lines of alternating color. If the printhead is not square to the drum, then variations may appear in this print.

Look for: Pronounced steps or breaks, 28 pixels wide, in the lines. You may also see unusual thickening in the lines.

Causes: The printhead is too far away from the drum, causing the ink drops to travel further than they were meant too. Consequently, some are traveling in a higher arc and some are traveling in a lower arc. Check and adjust printhead head to drum gap.

Make sure the printhead's head tilt adjustment (left side of the printer) was not changed from its factory setting. If it is altered from the factory setting (such as by shipping damage) the print engine must be replaced.



9100-89

Phaser 340 printers serial numbered B0*xxxxx* to BB*xxxxx*.

Service Test Print 8 - Blue band. This print reveals wrinkling.

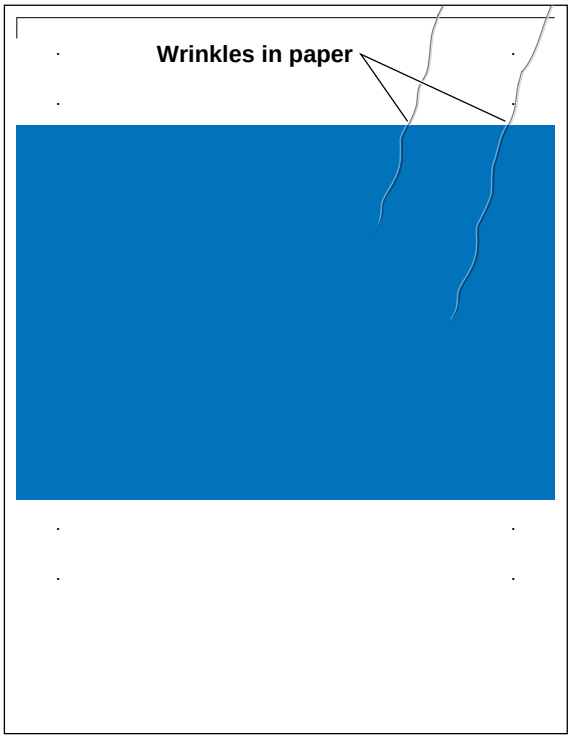
Look for: Wrinkles or deformity of the paper itself caused by the print process.

Causes: Try different print media.

The drum may not be properly oiled. Replace the drum maintenance tray.

Check the drum temperature sensor for debris build-up on the sensor or the sensor is in improper contact with the drum. Refer to Test Print 4.

The transfix pressure is incorrect. Replace the drum/transfix assembly.



9100-90

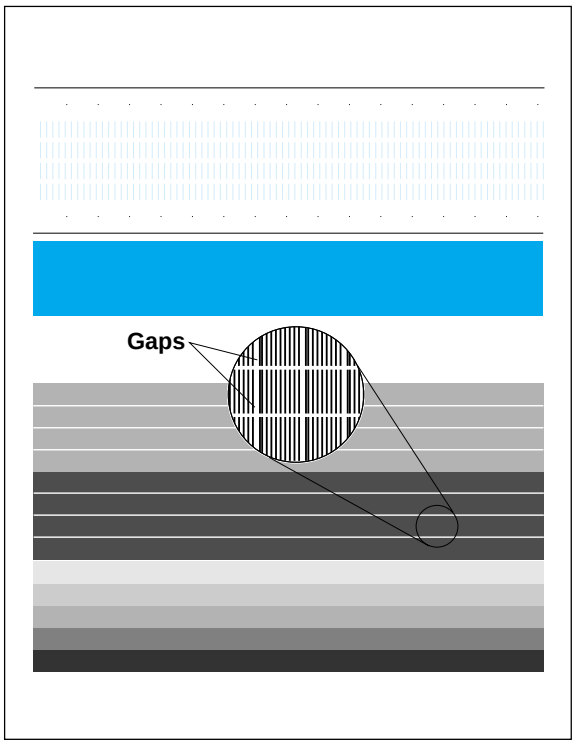
Test prints for Phaser 340 printers serial-numbered BCxxxxx and up (Version 2 printers)

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 1 - Jstep5**.** *While this print can be printed in 300 dpi, it should only be printed and interpreted in 600 x 300 dpi*. This print reveals problems with the x-axis motion of the printhead.

Look for: Unusually wide white gaps or thick black lines between the thin, vertical black lines. The thin lines should be evenly spaced and consistent across the width of the page.

Causes: Gaps could either be caused by a defective x-axis drive or by something, such as a wiring harness interfering with the horizontal movement of the printhead. The ink loader, without the top cover installed to secure it in place, may rest too low and interfere with the printhead's motion. In this case the ink loader should rest on extrusions on the printer's side frames.



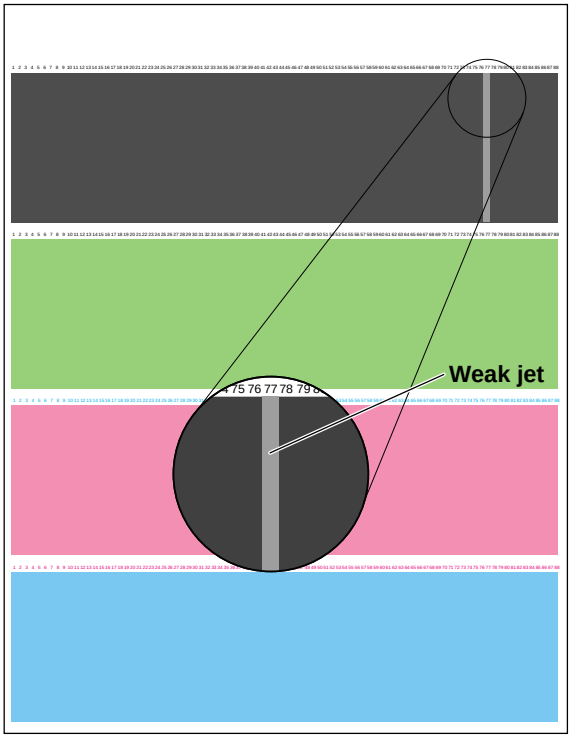
9100-113

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 2 - Weak jet. This print shows which jets are not outputting enough, if any, ink compared to its neighboring jets. Note that the yellow jets bands have a small amount of cyan ink added to them, which tints them green, to make them more visible.

Look for: No interlacing is used in this print; expect light/dark variation between jets. Look for *much* lighter colored vertical bands in the horizontal bars. Weak jets in the yellow band are distinguished by a cyan tint.

Causes: A jet may be partially clogged; perform printhead clean/purge cycles on the printhead to remove contaminants from the poor performing jet. Turn the printer off for 2 to 3 hours (or overnight, if practical). Then perform clean/purge cycle again. As a last resort, replace the printhead.



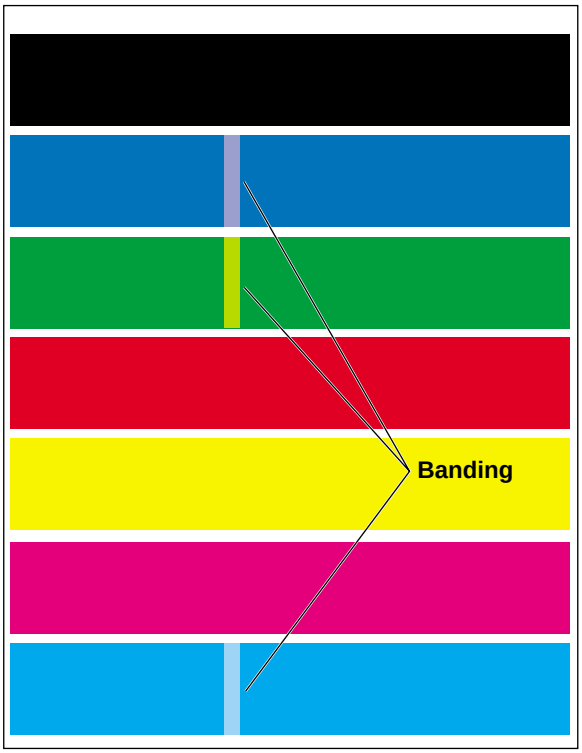
9100-114

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 3 - Big bands. The large, secondary colored areas in this print reveal banding.

Look for: Vertical “bars” or bands of *much* lighter color or a different hue running in-line in one or more of the solid fills.

Causes: Banding is caused by color-to-color misregistration inherent in the fabrication of the jet. Ensure the printhead-to-spacing is correct. Then use the PC diagnostics to ensure that the printhead and drum thermals are correct. A weak jet can cause banding; refer to Test Print 2. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. As a last resort, replace the printhead.



9100-115

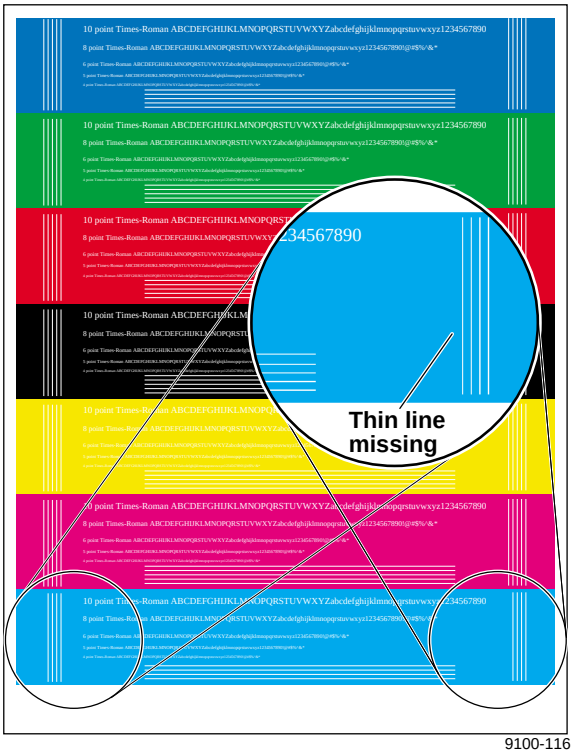
Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 4 - Reverse text. This print in 300 dpi indicates if the printhead is outputting properly-sized drops of ink and that the drum temperature is not too high.

Look for: Legibility in the lines of 6 point text; particularly in the primary colors. If the letters are closed or badly "plugged" with ink, the printhead is laying down to much ink. In a good print you should see **five** vertical parallel lines of different thicknesses on both the left and right side of the print. If the thinnest line is missing, the printhead is outputting too much ink or the drum temperature is too high.

Causes: Check the thermal regulation of the printhead and of the drum. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. Replace the drum temperature sensor. As a last resort, replace the printhead.

This print should be made with the printer covers closed and in place. The heat loss without the covers can hide the "too-hot" thermal problem.



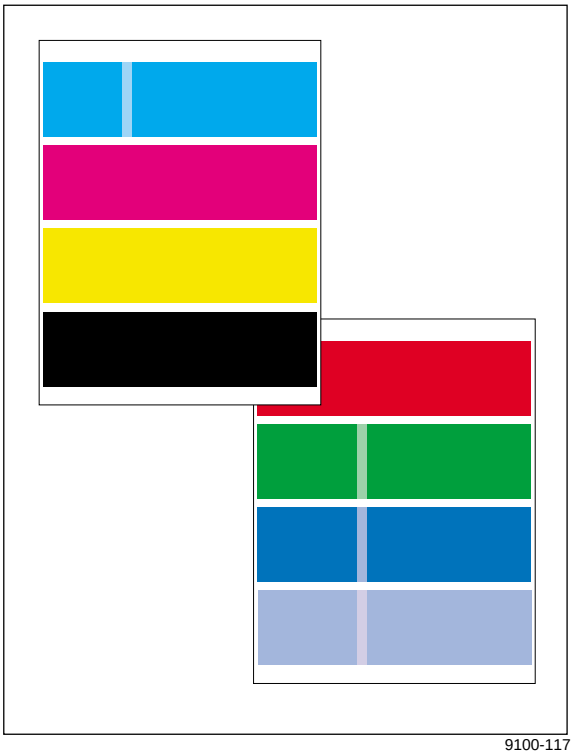
9100-116

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 5 - Transparency/manual feed mode. This print allows you to evaluate transparency printing as well as manual feeding. It prints two prints, one with primary color fills and one with secondary color fills and a band of 50% blue as this is a popular background for overhead foils.

Look for: Look for uniformity of fill with no scratching. Evaluate the print on an overhead projector. Some print artifacts visible on the print do not show when projected. Likewise, some defects do not show until projected.

Causes: The ink drops from the jets are traveling in incorrect trajectories. The printhead is incorrectly mounted or its printhead-to-drum spacing is incorrect.



9100-117

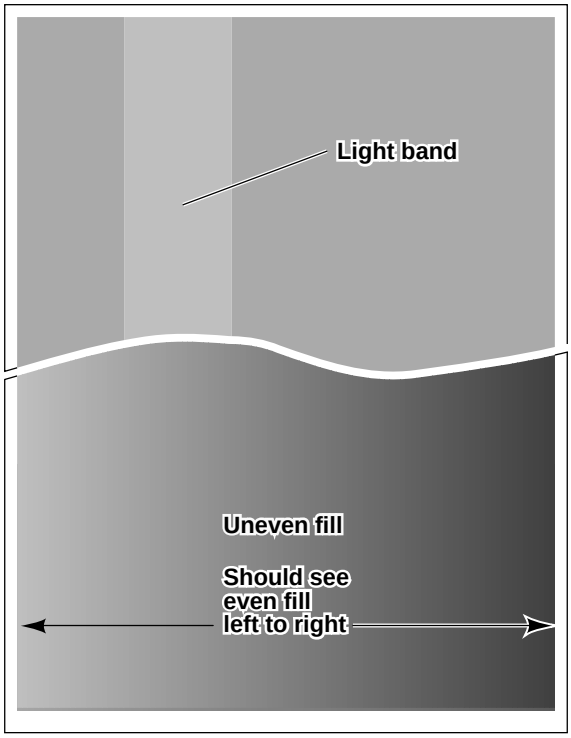
Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 6 - Black dither pattern. This print is made up of a 66% black fill. It reveals variations in the ink drop spread caused by thermal variations or transfix roller pressure variations or drum oiling variations.

Look for: Large area of differences in the density across the width of the page. (A slight variation is normal.) Look for a lighter vertical band, about 1/5 the width of the page, running the length of the page. Also look for small light spots or irregular white lines, vertically aligned with each other, in the print every 13.3 cm (5.25 in.).

This pattern is sensitive to the density variations in the paper it is printed on. Use a high-quality grade of laser printer paper; otherwise, the print will appear mottled.

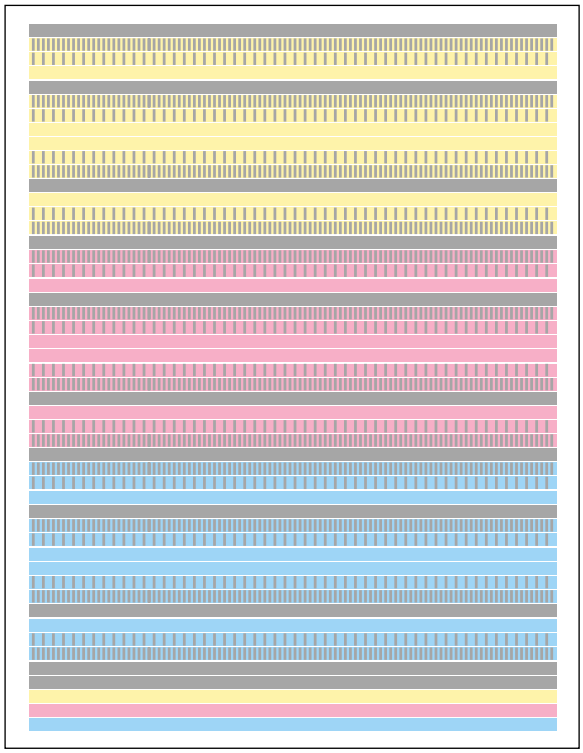
Causes: Use the PC diagnostics to check the printhead and drum for good thermal regulation. Also check the printhead-to-drum gap. Ensure the drum fan is running properly. A vertical band, 1/5 page wide, running the length of the page, is caused by a stuck heating plate in the paper preheater. Run the front panel cleaning procedure `Clean: Ink Smears` which raises the temperature of the paper preheater and may free the stuck heating plate. Additionally, you may manually force a thick sheet of paper (65 to 80 lb.) though the paper preheater to jar the plate free. Light spots are caused by a defective transfix roller with a weak, soft spot that is not pushing the ink into the paper as the rest of the roller does. In this case, replace the drum/transfix unit. Replace the drum maintenance tray; particularly if you observe variations in the glossiness of the print.



9100-88

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 7 - Printhead diagnostic. This print is used for manufacturing and engineering evaluation of printhead performance.



9100-118

Phaser 340 printers serial numbered BC*xxxxx* and up.

Service Test Print 8 - Solid fills. These seven prints show uniformity of fill.

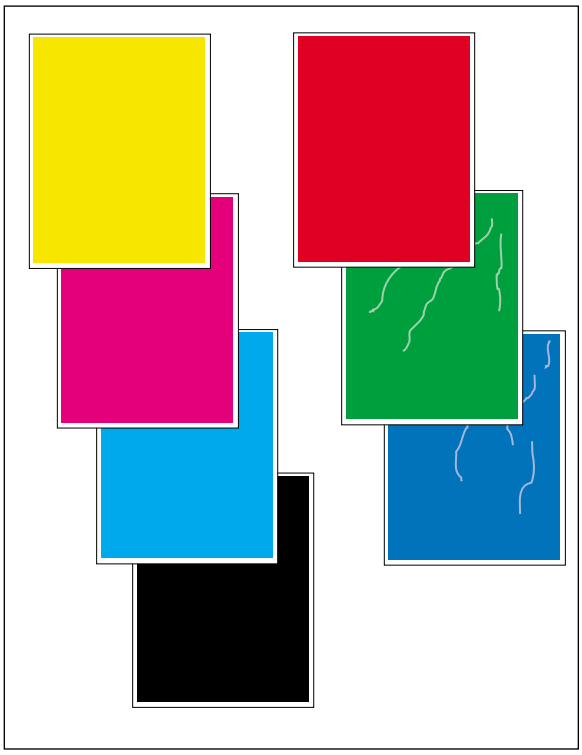
Look for: Even, uniform fills throughout each print. Wrinkles or deformity of the paper itself caused by the print process show up in blue and green prints at 600 dpi before other colors. A slight amount of wrinkling in green fills at 600 dpi is normal. But there should be no wrinkling in 600 dpi blue fills.

Causes: Weak jets or uneven drum heating may cause uneven fills.

To solve wrinkling, try different print media. Replace the drum maintenance tray to correct streaking.

Check the drum temperature sensor for debris build-up on the sensor or the sensor is in improper contact with the drum. Refer to Test Print 4.

The transfix pressure is incorrect. Replace the drum/transfix assembly.



9100-119

Phaser 350 Test Prints

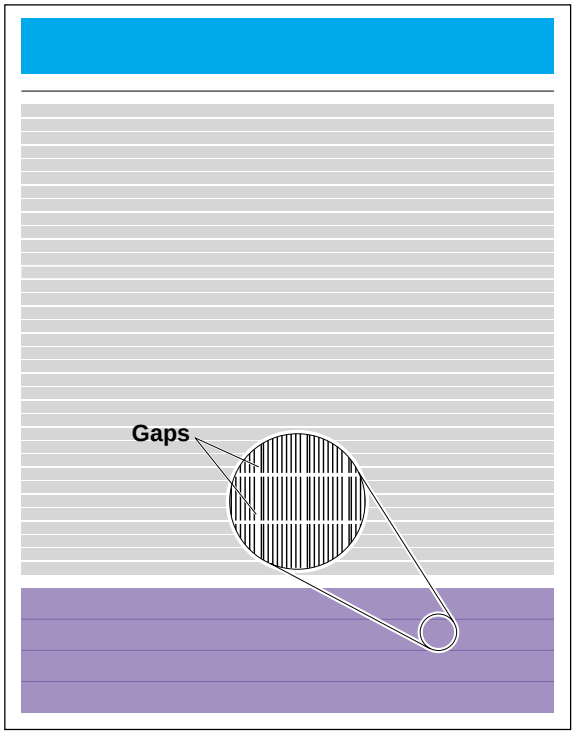
This topic shows a number of defective prints and the reason for the defects. The test prints push the printer to the extremes of its performance to reveal possible shortcomings. Note that defects revealed by the prints may not show up at all in the course of ordinary printing. In servicing the printer, you should minimize the defects shown by the prints but not necessarily eliminate them.

Test prints for Phaser 350 printers

Phaser 350
Service Test Print 1 - Jstep5**.**
While this print can be printed in 300 dpi, it should only be printed and interpreted in 600 x 300 dpi. This print reveals problems with the x-axis motion of the printhead.

Look for: Unusually wide white gaps or thick blue lines between the thin, vertical blue lines at the bottom of the print. The thin lines should be evenly spaced and consistent across the width of the page.

Causes: Gaps could either be caused by a defective x-axis drive or by something, such as a wiring harness interfering with the horizontal movement of the printhead. The ink loader, without the top cover installed to secure it in place, may rest too low and interfere with the printhead's motion. In this case the ink loader should rest on extrusions on the printer's side frames

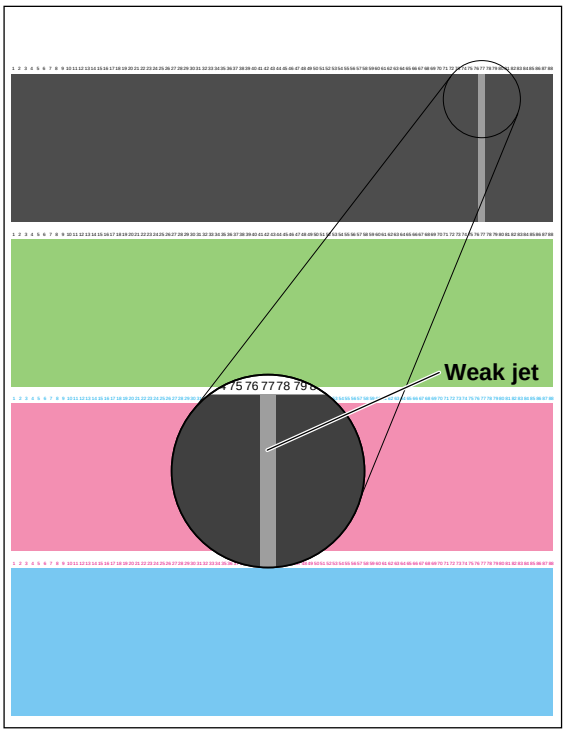


9100-000

Phaser 350
Service Test Print 2 - Weak jet. This print shows which jets are not outputting enough, if any, ink compared to its neighboring jets. Note that the yellow jets bands have a small amount of cyan ink added to them, which tints them green, to make them more visible.

Look for: No interlacing is used in this print; expect light/dark variation between jets. Look for *much* lighter colored vertical bands in the horizontal bars. Weak jets in the yellow band are distinguished by a cyan tint.

Causes: A jet may be partially clogged; perform printhead clean/purge cycles on the printhead to remove contaminants from the poor performing jet. Turn the printer off for 2 to 3 hours (or overnight, if practical). Then perform clean/purge cycle again. As a last resort, replace the printhead.

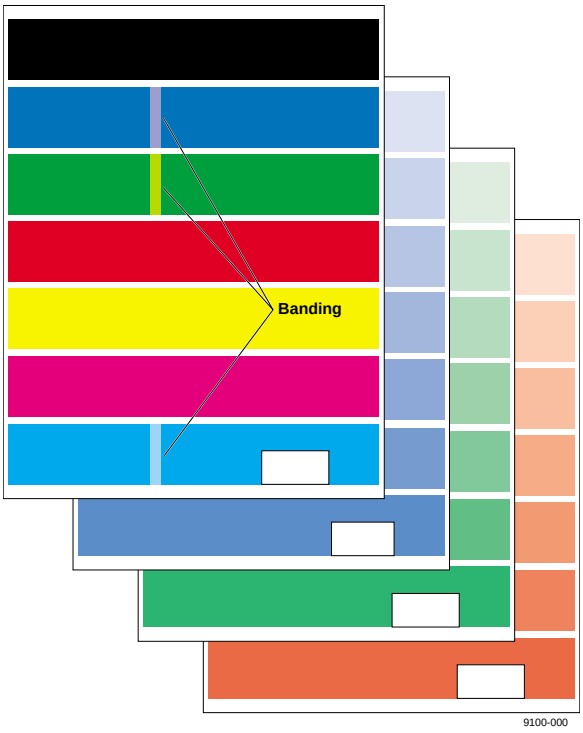


9100-114

Phaser 350
Service Test Print 3 - Big bands. The large, secondary colored areas in the these four prints reveals banding. The tinted bands in the second, third and fourth print run from 20, 30, 40, 50, 60 , 70 and 80% tints of a the secondary colors blue, green and red.

Look for: Vertical “bars” or bands of *much* lighter color or a different hue running in-line in one or more of the solid fills.

Causes: Banding is caused by color-to-color misregistration inherent in the fabrication of the jet. Ensure the printhead-to-spacing is correct. Then use the PC diagnostics to ensure that the printhead and drum thermals are correct. A weak jet can cause banding; refer to Test Print 2. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. As a last resort, replace the printhead.

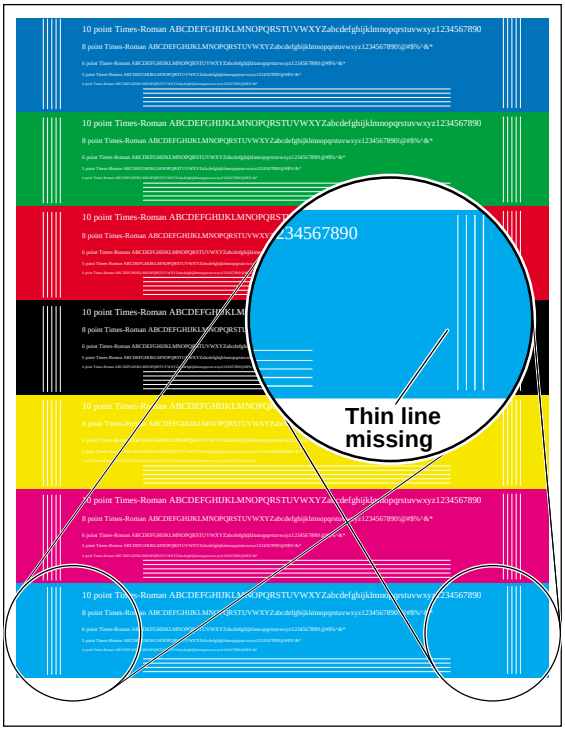


Phaser 350
Service Test Print 4 - Reverse text. This print in 300 dpi indicates if the printhead is outputting properly-sized drops of ink and that the drum temperature is not too high.

Look for: Legibility in the lines of 6 point text; particularly in the primary colors. If the letters are closed or badly “plugged” with ink, the printhead is laying down to much ink. In a good print you should see **five** vertical parallel lines of different thicknesses on both the left and right side of the print. If the thinnest line is missing, the printhead is outputting too much ink or the drum temperature is too high.

Causes: Check the thermal regulation of the printhead and of the drum. Make sure that the drum temperature sensor is correctly mounted and in proper, even contact with the drum. If necessary, remove the sensor and check it for an accumulation of debris at its contact point. Replace the drum temperature sensor. As a last resort, replace the printhead.

- Note: This print should be made with the printer covers closed and in place. The heat loss without the covers can hide the “too-hot” thermal problem.

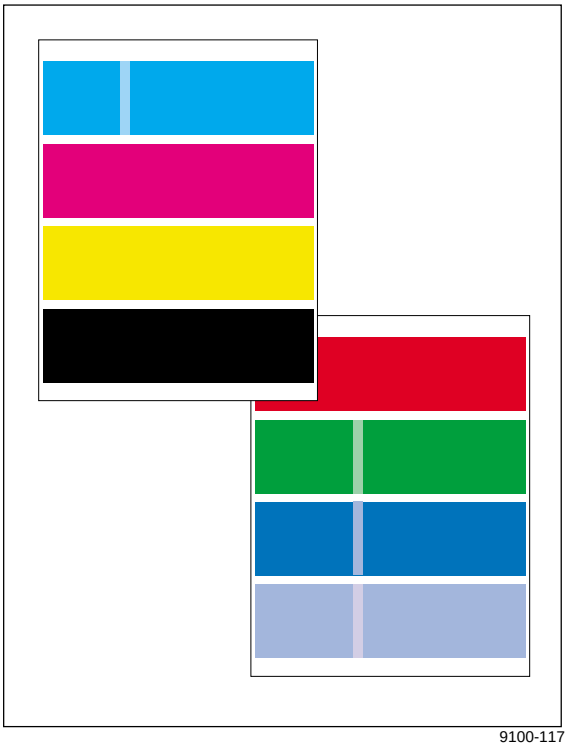


9100-116

Phaser 350
Service Test Print 5 - Transparency/manual feed mode. This print allows you to evaluate transparency printing as well as manual feeding. It prints two prints, one with primary color fills and one with secondary color fills and a band of 50% blue as this is a popular background for overhead foils.

Look for: Look for uniformity of fill with no scratching. Evaluate the print on an overhead projector. Some print artifacts visible on the print do not show when projected. Likewise, some defects do not show until projected.

Causes: The ink drops from the jets are traveling in incorrect trajectories. The printhead is incorrectly mounted or its printhead-to-drum spacing is incorrect.



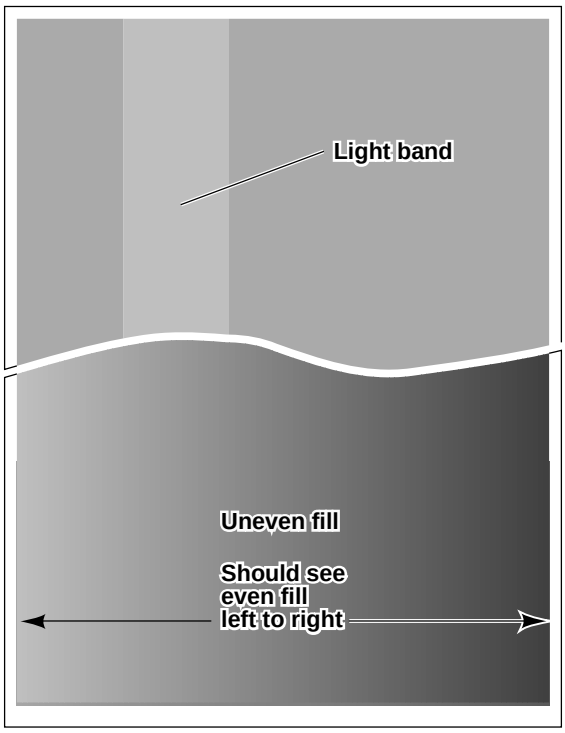
9100-117

Phaser 350
Service Test Print 6 - Black dither pattern. This print is made up of a 66% black fill. It reveals variations in the ink drop spread caused by thermal variations or transfix roller pressure variations or drum oiling variations.

Look for: Large area of differences in the density across the width of the page. (A slight variation is normal.) Look for a lighter vertical band, about 1/5 the width of the page, running the length of the page. Also look for small light spots or irregular white lines, vertically aligned with each other, in the print every 13.3 cm (5.25 in).

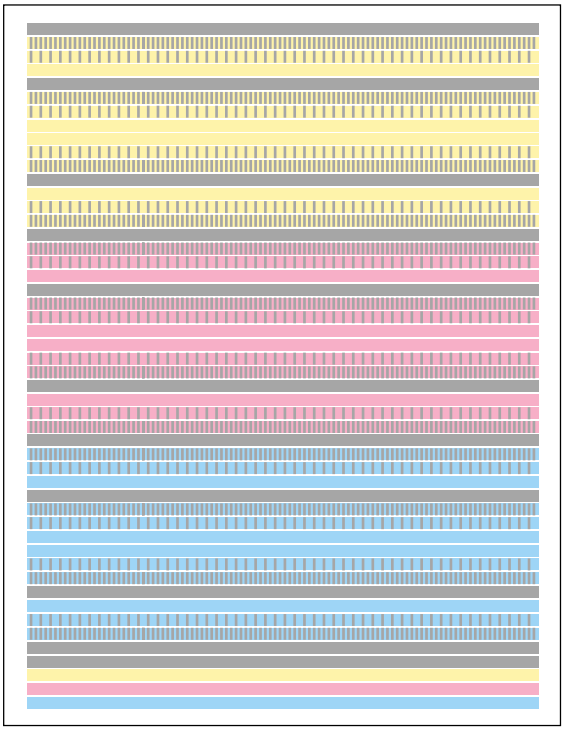
This pattern is sensitive to the density variations in the paper it is printed on. Use a high-quality grade of laser printer paper; otherwise, the print will appear mottled.

Causes: Use the PC diagnostics to check the printhead and drum for good thermal regulation. Also check the printhead-to-drum gap. Ensure the drum fan is running properly. A vertical band, 1/5 page wide, running the length of the page, is caused by a stuck heating plate in the paper preheater. Run the front panel cleaning procedure `Clean: Ink Smears` which raises the temperature of the paper preheater and may free the stuck heating plate. Additionally, you may manually force a thick sheet of paper (65 to 80#) though the paper preheater to jar the plate free. Light spots are caused by a defective transfix roller with a weak, soft spot that is not pushing the ink into the paper as the rest of the roller does. In this case, replace the drum/transfix unit. Replace the drum maintenance tray; particularly if you observe variations in the glossiness of the print.



9100-88

Phaser 350
Service Test Print 7 - Printhead diagnostic. This print is used for manufacturing and engineering evaluation of printhead performance.



9100-118

Phaser 350
Service Test Print 8 - Solid fills. These seven prints show uniformity of fill.

Look for: Even, uniform fills throughout each print. Wrinkles or deformity of the paper itself caused by the print process show up in blue and green prints at 600 dpi before other colors. A slight amount of wrinkling in green fills at 600 dpi is normal. But there should be no wrinkling in 600 dpi blue fills.

Causes: Weak jets or uneven drum heating may cause uneven fills.

To solve wrinkling, try different print media. Replace the drum maintenance tray to correct streaking.

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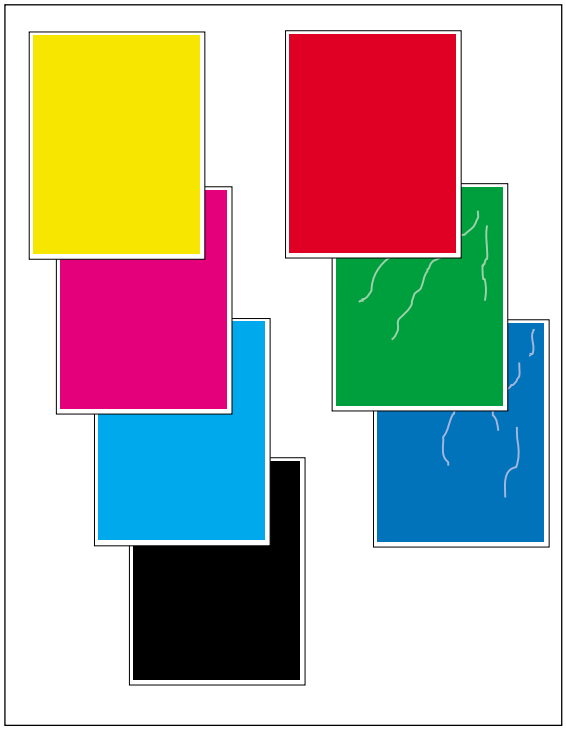
The transfix pressure is incorrect. Replace the drum/transfix assembly.



9100-119

Wiring Diagram